

TALENT CLEAN ENERGY ACTION PLAN 2018-2030



11/18/2016

Proposed by Talent Community Members

This plan was developed by Talent community members in 2016 in partnership with Together for Talent and Rogue Climate Talent to help our community start transitioning to clean energy and greater energy efficiency.

Talent Clean Energy Action Plan

2018-2030

PROPOSED BY TALENT COMMUNITY MEMBERS

Table of Contents

Executive Summary.....	3
Introduction.....	5
Overall Vision for Talent.....	6
Talent Energy Profile Baseline.....	7
Economic Case for Action.....	9
Energy Conservation.....	15
Energy Generation.....	22
Stakeholders.....	36
Communications Plan.....	37
Overall Success Metrics.....	42
Roles and Responsibilities	43
Project Scope.....	44
Talent Clean Energy Team.....	45
Glossary of Commonly Used Terms.....	46
Acknowledgements.....	52
References and Appendices.....	52

Executive Summary

It is now an accepted reality that climate change is upon us. Resolving the challenges it brings will require significant changes to our overall approach toward energy. Over the last few years, due in part to the lack of leadership by national governments, cities around the globe have taken the initiative to change their sources of energy and how they use it. Local governments have an indispensable role to play in reducing greenhouse gas emissions, in developing the fundamental shape of community transportation systems and buildings, in helping individuals make informed choices about their energy use, and in shaping policy at the county and statewide level.

Talent, Oregon (The City), is one of those communities wanting to make a difference. At the request of the Mayor of Talent, a group of residents assembled to create a Clean Energy Action Plan, with the hope that an adopted Action Plan will be incorporated into The City's Master Plan. Following a kick-off event over a year ago, in October 2015, many residents have labored many hours to consult with experts, other cities and towns, and to do the basic research that has resulted in this plan. This plan includes both clearly implementable immediate steps that can take advantage of existing programs and opportunities, as well as other proposals that need substantial research and may or may not be feasible depending on what funding is available.

The **Talent Clean Energy Action Plan 2018-2030** addresses four major areas:

Energy Conservation. In 2015, incorporated and unincorporated Talent consumed 52 GWh (one Gigawatt is equivalent to 1×10^6 Kilowatts). The plan proposes that The City reduce its energy consumption by 30% by the year 2020. Since most of this energy use comes from the residential sector—a full 75%—the main emphasis will be on engaging residents and landlords through programs to install LED bulbs, upgrade older home insulation, install ductless HVAC systems, replace older appliances and implement simple energy conservation measures. Thus, education and disseminating information are a major component of the plan.

Renewable Energy Generation. The plan recommends replacing 100% of fossil fuel power with clean, renewable energy by the year 2030. The primary source is expected to come either from installing solar panels on residential, business, and public roofs, or as part of larger, utility- or community-scale installations. Capital expenditures for this project will be significant (\$50 to \$100 million), so the 2018-2030 Plan identifies potential funding sources and strategies to reduce this cost. The plan also proposes taking advantage of existing clean energy sources like Blue Sky (Pacific Power) and Arcadia (wind energy) to expedite a transition to clean, renewable energy while transitioning to solar energy.

Resilience. As the cost of fossil fuel energy continues to rise—both in dollars and in damage done to the environment—it is critical that Talent break away from using it in the future. As capacity, grid, and other anticipated issues arise, it is also important that Talent create an energy infrastructure that makes it less dependent on the current electric grid network for its electrical power. The actions in the 2030 Plan are consistent with reducing Talent's dependence on "dirty" and long-distance energy transmission.

Local Economy. Currently, the Talent area sends away almost \$6 million each year, mainly to Pacific Power's parent company in New York. One action plan goal is to find ways to keep those dollars in the local economy. This is achieved by:

- Ensuring that the jobs created by conservation and renewable energy projects are filled by local companies and workers when possible.
- Considering the creation of a Talent Utility District so that permanent jobs, revenues from selling energy to the Talent community, and the increase in discretionary income generated by lower energy costs in the future remain in Talent and stimulate the local economy.

Although this Action Plan describes the approaches for achieving the 2020 and 2030 goals, this document must be viewed as a continuation of the Talent Clean Energy Action Plan 2017. The year-one activities will not only serve to slowly ease the Talent community into a new era of energy generation and use but it will also allow us to increase our knowledge in and understanding of the complex requirements of the longer term goals.

Introduction

Over the last three decades, each has been warmer than the one before and science is telling us that this trend will continue. In addition, the inexpensive fossil fuels that our community and country depend on for transportation, food production, and industry are projected to become increasingly expensive. Talent is joining a growing list of cities around the world that are addressing these climate change and energy concerns with a plan to meet the challenges with vision and creativity. In developing this local plan, community leaders and citizens have clearly recognized the need to re-imagine how we live, eat, travel, and play. As we work to adapt to the uncertainties ahead, we can be sure that the boldness of our actions today will determine the quality of life in Talent now and into the future. Energy consumption and climate change are two sides of the same coin, inextricably intertwined. Regardless of whether the now politically correct “climate change” or the more succinct “global warming” labels are used, the fact remains that human activity since the industrial revolution has significantly affected the atmosphere to the degree that today we face a critical dilemma - revolutionary and fundamental change of our approach to energy consumption and all aspects of civilization is required. A new paradigm is emerging and part of its demands is this addressing the degradation of our biosphere and hence through extrapolation, how we go about our daily business of living. We must ensure that natural systems are healthy, diverse and resilient in the face of a changing climate and help our friends and neighbors prepare to adapt to climate change - ensuring that the most vulnerable among us are equipped to cope with rising energy prices, as well as extreme weather events.

Successfully tackling this challenge will require an unwavering commitment to the effort over the course of decades. We look forward to what our community can accomplish together.

While the early achievements of the Talent region are notable, the latest science suggests that dramatically more ambitious actions are required to mitigate the most extreme impacts of the changing climate. At the same time, efforts to reduce emissions must be coupled with preparations for a changing climate. The physical impacts of climate change are already in evidence and will expand and intensify in the decades ahead. Because of the long time lag between changes in emissions and global climate patterns, the future climate will first reflect the past century of emissions, while ultimately reflecting our choices today.

The task of achieving this vision is complicated. It is also a tremendous opportunity. Fossil fuels are a finite and costly resource, as disruptive swings in oil and natural gas prices make clear. An advanced “low carbon” society — one markedly less reliant on fossil fuels — will be more stable, prosperous and healthy than one that remains dependent on fossil fuels.

Reducing carbon emissions dramatically is a global challenge that local governments cannot solve alone. The federal government must make fundamental shifts in its energy policy and align its vast research and development resources with climate protection. The State of Oregon has an invaluable role to play in transportation investments, strengthening building codes, regulating utility companies, managing forest lands, reducing waste and guiding local land use policies.

Local governments have an indispensable role to play as well, both in developing the fundamental shape of the community, transportation systems and buildings, and in helping individuals make informed choices about everyday business and personal choices. Accordingly, the Mayor has asked her constituency to develop a renewable energy plan for The City of Talent. Together with the Talent Clean Energy One-Year Plan, this document responds to that directive. Guided by an adopted Talent Clean Energy Action Plan, Talent will carry out policies and programs to help conserve energy and to prepare for the coming environmental and economic challenges by transitioning to clean, renewable energy and ultimately generating its own. These efforts will help the entire community thrive now and in the future, strengthening our local economy, creating more jobs, improving health, and maintaining the high quality of rural life for which this region is known.

Overall Vision For Clean Energy in Talent

Vision

Talent becomes a leader in Oregon by transitioning to 100% clean renewable energy. As a community, we want to reduce the inefficient use of resources and reduce energy costs, create sustainable jobs and strengthen Talent's local economy, and prepare for the impacts of climate change while preserving our rural way of life.

Action Plan

We are proposing a comprehensive approach to community development in Talent by implementing a clean energy action plan which outlines our community's civic and governmental actions, policies, and business practices to provide opportunities for residents to help drive a shift in how we source, use, and conserve energy.

GOAL: Conservation

- **Reduce energy consumption by 30% by 2020 from 2015 levels**
- Activities may include:
 - o Weatherization
 - o Energy efficient heating and cooling systems and appliances
 - o LED Lighting
 - o Upgrading commercial building codes

GOAL: Renewable Energy

- **Achieve 100% clean renewable energy source for Talent by 2030 while keeping prices affordable and preserving our rural quality of life**
- Sources of energy could include:
 - o Solar (residential, business, commercial, solar cooperatives, solar farms)
 - o Biomass/Biogas
 - o Low-Temperature Geothermal (Heat pump geo-exchange)
 - o Small scale hydro (non-dam systems and irrigation canals)

GOAL: Resilience

- **Protect against increasing costs of energy by transitioning off of fossil fuels to reliable renewable sources**
- Develop local energy sources for backup in the event of an emergency
- Diversify energy sources to protect against generation variability

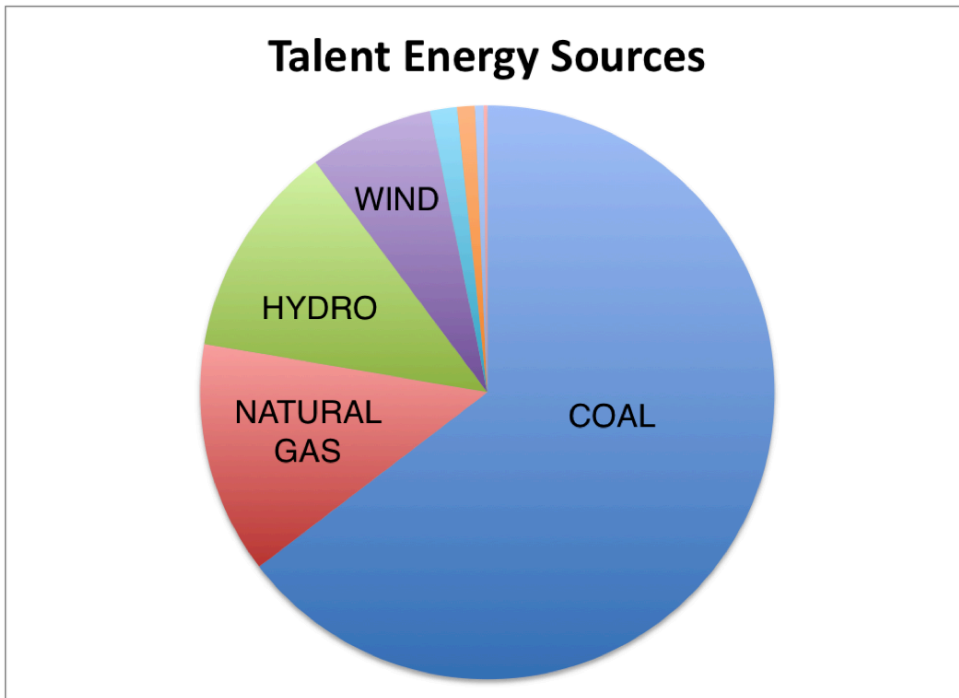
GOAL: Local Economy

- **Strengthen Talent’s local economy by keeping dollars spent and dollars saved on energy in the community**
- Create and retain good paying sustainable jobs

Talent Energy Profile

Where does Talent’s energy come from?

The community of Talent receives its energy from the investor owned utility Pacific Power and the natural gas provider Avista. The electrical energy mix that Talent is supplied with from Pacific Power comes 64.6% from coal, 13.1% from gas, 12.1% from hydro, 7.1% from wind, and the remaining 3.2% comes from a mix of other sources. Coal and gas are two of the largest contributors to climate change in Oregon and also have multiple negative health and environmental impacts to communities that live close to extraction.



Sources of energy sold in Oregon by Pacific Power and Avista, 2010-2012. Oregon DOE.

How much energy does Talent use?

Total Energy Use for Talent in kBtu (2015)				
Type of Energy	Amount	Conversion Factor	Total (kBtu)	% of Energy Use
Electrical Energy (KWh)	52,300,253	3.412	178,448,463	68.38%
Gas Energy (Therms)	816,000	100	81,600,000	31.27%
Solar Energy ** (KWh)	266,522	3.412	909,373	0.35%
Total Energy Use for Talent in kBtu (2015)			260,957,836.30	100.00%

The table above provides a baseline for how much energy Talent uses by energy type so that we can track it over time and measure our progress in reducing energy usage and generating more energy locally. For consistency and comparability, we have converted the total kilowatt hours used (KWh) through electrical energy and the total Therms used through gas energy to thousand British thermal units (kBtu) using the conversion factors 3.412 and 100 respectively.¹ While not directly used to generate electricity, natural gas and propane are used to heat water, homes and for cooking, and are included in this table as reference only. As Talent migrates all of its energy use to clean, renewable sources, it is ultimately expected that natural gas and propane appliances will be phased out and replaced with electric ones. This additional electricity consumption will therefore need to be included in the calculation of the total electricity required by The City of Talent as a whole.

Focusing in on electrical energy

In 2015, the incorporated and unincorporated territories of Talent combined spend a total of **\$5,750,667.51** dollars annually on electrical energy, which is equal to **52,300,253** KWh. At this point, we do not have information regarding how much money was spent on natural gas or on solar or other renewable installations. We recommend The City collect quarterly data regarding gas and electrical energy usage and renewable installations to start tracking progress. For the purposes of this plan, the 2015 energy consumption figures listed above will become the baseline from which we will measure progress.

¹ <https://portfoliomanager.energystar.gov/pdf/reference/Thermal%20Conversions.pdf>

Electrical Energy Data

Calendar Year To Date December 2015

Revenue Class	Revenue	KWh	Customers Average	Percent of Electrical Energy
TALENT UNINCORPORATED				
COMMERCIAL SALES	\$221,560.73	2,056,504	84	13.45%
IRRIGATION SALES	\$41,153.70	339,223	39	2.22%
RESIDENTIAL SALES	\$1,454,830.33	12,892,912	781	84.33%
District Total	\$1,717,544.76	15,288,639	905	29.23%²
TALENT				
	Revenue	KWh	Customers Average	Percent
COMMERCIAL SALES	\$1,062,280.76	10,340,303	198	27.94%
INDUSTRIAL SALES	\$22,396.45	234,546	3	0.63%
IRRIGATION SALES	\$6,468.84	53,810	5	0.15%
PUBLIC STREET & HIGHWAY LIGHTING	\$33,196.62	176,656	2	0.48%
RESIDENTIAL SALES	\$2,908,780.08	26,206,299	2,847	70.81%
District Total	\$4,033,122.75	37,011,614	3,054	70.77%³
TOTAL Unincorporated + Incorporated				
	Revenue	KWh	Customers Average	Percent
COMMERCIAL SALES	\$1,283,841.49	12,396,807	282	23.70%
INDUSTRIAL SALES	\$41,153.70	339,223	3	0.45%
IRRIGATION SALES	\$47,622.54	393,033	44	0.75%
PUBLIC STREET & HIGHWAY LIGHTING	\$33,196.62	176,656	2	0.34%
RESIDENTIAL SALES	\$5,487,953.08	39,099,211	3,628	74.76%
District Total (Unincorporated +Incorporated)	\$5,750,667.51	52,300,253	3,959	100%

Economic Case for Action

Talent residents and The City of Talent (The City) are interested in using energy more efficiently as well as in transforming our infrastructure (or providers) to eliminate the need to purchase carbon-based energy. Currently, about 70% of the electricity purchased by residents, businesses and city operations comes from burning fossil fuels that are transported to Talent via a transmission network owned primarily by Pacific Power, in addition to natural gas supplied by the investor–owner utility Avista.

² Percent of total Talent Incorporated and Unincorporated Usage

³ Percent of total Talent Incorporated and Unincorporated Usage

Other cities that have undertaken similar efforts have demonstrated that communities can experience direct financial benefits in terms of long-term energy savings and job creation in addition to the climate and environmental benefits of transitioning to clean energy and greater energy efficiency. For a small community like Talent, demonstrating the financial benefits of action both to the community, individual residents, and The City is imperative for the long-term success of this project. It is clear that the two main branches of the Clean Energy Project, Conservation and Generation, will have different financial impacts on the community and different timeframes. For example, investments in energy conservation will result in reasonably short-term money savings to the end-user. On the other hand, investments in clean energy generation will not likely yield savings for several years. To better address these opportunities, we will separate the Economic Case for Change into two distinct sections: Energy Conservation and Clean Energy Generation.

Economic Case for Energy Conservation

The economic case for energy conservation is relatively straightforward in that the investment level required could be distributed within the community, can be phased-in in stages, and is relatively low compared to investments in energy generation. In addition, the result is felt directly by residents or businesses. Thus, one of the primary drivers for conserving energy from users' point of view is that it has the potential to reduce their monthly cost for energy in the short-term. According to Enhabit, a statewide nonprofit that helps homeowners weatherize their homes, pre-2008 homes in Southern Oregon can achieve on average a 30% reduction in energy consumption by implementing well known measures (e.g. switching to LED lighting, adding insulation, replacing heating/cooling equipment, installing new windows, replacing old appliances with Energy Star appliances, etc.) while some homes have achieved as high as a 50% reduction. The average amount of money spent by homeowners in order to achieve this reduction in energy use is around \$9,000. Even with low or no interest loans and financing options that are available in our region to finance energy efficiency projects, we recognize this is out of reach for many Talent residents and that many of Talent's residents are renters.

We estimate that the total number of households and businesses in incorporated Talent is 2,847 and 198 and in unincorporated Talent is 781 and 84, for a total of 3910. For working purposes we will use 3,628 as the number of Talent households. For 2015 (as of December 31) the total cost of residential energy was \$4.4 MM (million, see Talent Energy Profile, above). Applying the 30% savings average stated above, it would be estimated that Talent residents would save in average about \$1.5 million per year or \$413 per household. This figure does not include the annual expected increases in energy rates, so the actual savings could be higher. Clearly, the least energy efficient homes would benefit the most from efficiency/conservation efforts, while newer, more energy efficient homes would see less of a reduction in energy costs. From The City's point of view, the hope would be that as residents have more disposable income as a result of lower energy bills that some or all of that money would be spent in Talent to help stimulate the local economy.

In 2011 / 2012, the Rogue Valley Council of Government, the Geos Institute, and other partners conducted a Renewable Energy Assessment of the Rogue Valley. According to this report (Appendix A) energy conservation is the type of activity that generates the most jobs per dollar spent (Table 1, Benefits) compared to other renewable energy or fossil fuel infrastructure projects. If the energy conservation dollars are spent to hire local companies who in turn hire a local workforce, it is expected that for every \$1 MM spent in energy conservation activities, that 18 new jobs would be created and

result in an economic output of \$1.9 MM. It is unclear at this time exactly how many homes are good candidates for energy conservation efforts, but it is likely that the majority of homes in Talent could use some level of improvements in both conservation and efficiency efforts. According to Enhabit, over 800 homes in Talent could qualify for their programs, which target owner occupied homes built before 2008, and over 200 homes could qualify for free energy efficiency projects through the Energy Trust of Oregon. This could represent an investment of several million dollars with the corresponding addition of new jobs and the potential for economic activity for The City.

Given the diversity of the Talent population, it will be appropriate to search for potential funding sources, particularly for lower-income residences, that could help offset the initial conservation expenditures. Financing opportunities are discussed elsewhere in the plan but could include organizations like the Energy Trust of Oregon. ACCESS and the Energy Trust of Oregon, two local non-profits, provide energy efficiency upgrades free of cost to low-income homeowners and renters and folks who live in manufactured homes. The good news is that these expenditures can be phased in over time to match the economic circumstances of the community.

Economic Case for Clean Energy Generation

As can be expected, the economic case for a project becomes more complex the higher the initial/ongoing investments and the longer the timeline that is required to achieve the desired goals. This is the case for the Clean Energy Generation project.

As described in the Talent Energy Profile Baseline above, Talent (including unincorporated Talent) consumed 52,300 MWh in calendar 2015. Approximately 70% (or 36,600 MWh) of this energy was generated by burning fossil fuels. Assuming that the 30% Energy Conservation goal is reached, this means that The City must replace roughly 25,000 MWh/yr to achieve its goal of transitioning off fossil fuel electricity and onto clean renewable sources.

Initial estimates derived from www.homepower.com show that it would cost around \$52 MM (million) to build the infrastructure to generate 25,000 MWh/yr of energy through solar power. If the whole solar array were set up as a photovoltaic (PV) solar farm, our community would need about 75-100 acres of land⁴. Less land would be required if some of those panels are installed in current suitable rooftops (businesses or residential) and over open parking lots, which is highly recommended due to the small amounts of farm and housing land available in Talent. As solar panel costs continue to decrease and efficiencies increase, these numbers could be adjusted as appropriate. For example, the cost and land calculations above used standard 250W panels. More recent panel technology has achieved an output of over 370W per panel. Therefore, we expect that with newer technology the number of panels (and thus acreage) required to achieve the target 25,000 MWh/yr would decrease while we expect the cost to likely remain about the same.

According to the Rogue Valley Renewable Energy Assessment, every \$1 MM in investment in solar, is expected to create 14 jobs and have an economic output of \$1.8 MM. Thus, a \$52 MM investment would in theory create 728 new jobs and have an economic output to the community of \$94 MM.

⁴ As estimated by the National Renewable Energy Laboratory report on Land-Use Requirements for Solar Power Plants in the United States, NREL/TP-6A20-56290, June 2013.

The magnitude of this project is probably out of reach of The City and its residents' financial means. Thus the cost would likely need to be paid for in part by grants and donations and the balance by loans in addition to potential outside investment. These loans could also be sourced locally through organizations like the Rogue Credit Union, Umpqua Bank or others and would likely be a multi-year (e.g. 20 year) plan.

Once a solar array is live, the infrastructure would produce energy free of cost except for the minimal recurring maintenance and transmission expenses. In order to service the loan(s) for local projects and to cover the transmission costs, The City, for example, could charge its residents for energy use at the current rate charged by Pacific Power. This would be a significant selling point to the community by make the project cost-neutral to the end-users. It is also worth noting that since 2001 the energy costs in the U.S. have increased by an average 3.75% per year, so while the loan is still being serviced, residents would enjoy fixed-rate pricing and be protected against the likely future increases in energy prices. To put this into perspective, a household paying \$200/month for electricity today would likely pay \$500/month in 25 years. Switching to local solar energy at no extra cost and freezing energy costs now would end up saving this household close to \$100,000 over the same period. This is money that would stay in Talent instead of being shipped away to the utility company.

When the projects are paid off, residents would enjoy lower energy costs from that point forward because the energy from the sun is free. End-users would still need to pay for service, maintenance and transmission fees. As mentioned, the cost of renewable energy technologies, especially solar, are in rapid decline and the financial feasibility of individual projects will need to be evaluated on a case-by-case basis.

Green Economy

Climate protection policies and programs, if designed carefully, can strengthen the local economy by driving demand for locally provided products and services that reduce emissions. Because most routine daily activities generate carbon emissions, nearly every activity must be examined to identify cleaner and more sustainable alternatives. This fundamental reassessment presents major economic opportunity.

Beyond job creation, a shift away from fossil fuels such as coal, petroleum and natural gas will add substantial indirect economic benefits. Because Oregon has almost no fossil fuel resources, dollars spent on these energy sources contribute little to the local economy. By redirecting energy dollars to pay for efficiency improvements and non fossil fuel energy, businesses and residents will spend more money locally, expanding markets for locally produced products and services.

By integrating these elements, Talent will:

- **Create Local Jobs.** The past decade has proven that many of the technologies, products and services required for the shift to a low carbon future can be provided by Talent area and Rogue Valley companies. Dollars currently spent on fossil fuels will no longer leave our economy and will stay here to pay for home insulation, lighting retrofits, solar panels, bicycles, engineering, design and construction. City Council shall adopt an economic development strategy that prioritizes sustainability as the key economic engine of the Talent region.

- **Improve Social Equity.** Disparities among our residents can be reduced by ensuring that the communities most vulnerable to climate change are given priority for green jobs, healthy local food, energy efficient homes and affordable, efficient transportation. We can also improve equity if we ensure that impacted communities are included in the implementation of the Climate Action Plan items in a meaningful and engaging way.
- **Create Healthier Residents.** Walkable neighborhoods, fresh foods and clean air means healthier, more active residents. The “health dividend” is potentially vast in financial terms and invaluable in its contribution to quality of life.
- **Become Energy Self- Sufficient.** Every action in this Plan will reduce reliance on fossil fuels. As prices continue to increase in the long run and supplies become more uncertain, a reduced reliance on volatile oil supplies will diminish the risks faced by everyone.
- **Protect and Enhance Air Quality and Natural Systems.** Although not part of this Action Plan, sustaining the values and functions of our tree canopy, rivers, streams and wetlands is an essential strategy that can simultaneously reduce emissions, sequester carbon and strengthen our ability to adapt to a changing climate. Healthy watersheds, forests and ecosystems are an integral part of this plan.
- **Save Money.** Using less energy in our homes, buildings and vehicles means lower energy and transportation bills for residents, business and government. Likewise, home-grown food saves on grocery bills. The savings from reduced health-care costs of a healthy, active community are potentially most significant of all.

Table 1. 2012 Rogue Valley Renewable Energy Assessment

Figure ES-2: Summary of renewable energy technologies, by feasibility criteria.

Category	Energy Efficiency	Solar	Wind	Biomass	Hydroelectric	Anaerobic Digestion	Geothermal	Landfill Gas
Energy Type	Baseload; Peak matched	Intermittent; Peak matched	Intermittent	Baseload or Dispatchable	Baseload or Dispatchable	Baseload	Baseload	Baseload
Existing Resource	8 MW (2002-2008 projects only)	2.1 MW	0 MW	32 MW	121 MW	0.7 MW	0.5 MWe (thermal energy)	3.2 MW
Additional Potential	64 – 100 aMW ² (560,000 – 876,000 MWh / year)	35 MW ² (58,000 MWh)	27 MW ⁴ (68,000 MWh)	5 – 14.5 MW ⁵ (30,000 – 96,000 MWh / year)	2.4 MW ⁶ (18,000 MWh / year)	0.5 MW ⁷ (4,000 MWh / year)	0 MW ⁸	0 MW ⁹
Risk	First costs; Lack of understandable, comparable information on benefits; Lack of financing vehicles	High first cost; Incentives; Land uncertainty; Land use and utility interconnection (large-scale systems only)	Noise; Aesthetic issues; Land use and ownership; Development of remote areas; Utility interconnection; Raptor mortalities	Air emissions; Ash; Odor; Noise; Ability to source cost-effective feedstocks; Utility interconnection; Loss of soil nutrients; Potential for Habitat disturbance; Carbon-neutrality questioned	Water rights; disruption to water system (turbidity, temperature, habitat); Variable fuel source; Utility interconnection	Ability to cost-effectively source and separate feedstock; Air emissions; Odor; Permits	Lack of resource; Fluid disposal and risk of ground water contamination; Development of pristine areas; Water rights; Zoning; High exploration costs	Low resource potential; Air emissions; Utility interconnection; Permits
Benefit	Displaces need for generation and emissions; Cost savings for utility customers; Various financial incentives; 17 jobs per \$1 million	No air emissions; Carbon neutral during operation; Various incentives; Generates REC; low cost of operation; 14 jobs per \$1 million	No air emissions; Carbon neutral; Various financial incentives; Generates REC; 3 jobs per \$1 million	Displaces emissions from open burning; Reduces wildfire risks; Various financial incentives; supports existing industry. Currently generates RECs; 11 jobs per \$1 million	Carbon neutral during operation; Low-impact hydro generates RECs; Various incentives	Generates soil nutrient products; More efficient gas capture compared to landfills; Generates RECs and Carbon Credits; Various incentives	No air emissions; Carbon neutral; Generates RECs; Various incentives	Reduced risk, odor and release of methane (a powerful greenhouse gas); Generates RECs and Carbon Credits
Levelized Cost (\$/MWh)	\$0 - \$106 (average ~\$35)	\$90 - \$154	\$44 - \$91	\$65 - \$151	Incremental: \$10 - \$98 Small and Micro: \$57 - \$136	\$36 - \$115	\$42 - \$69	\$50 - \$81
Energy Return	Not available	3 - 6	18 - 34	3 - 27	170 - 280	3 - 20	2 - 13	Not available
Carbon Intensity	Not available	50 - 59 kg CO ₂ /MWh	6 - 14 kg CO ₂ /kWh	Not available	3 - 23 kg CO ₂ /MWh	120 kg CO ₂ /MWh	23 - 122 kg CO ₂ /MWh	10 kg CO ₂ /kWh

RECs = Renewable Energy Certificates
 Note: Jobs are presented per \$1 million dollars invested in each technology. This analysis was only performed for EE, solar, wind, and biomass. See Appendix A for details.

² These values represent the range of potential over the next 20 years. The point value used in Figure ES-1 represents the mid-point of this range.
³ This value represents a scenario where 5% of total roof area suitable for solar installations has installations of solar PV panels (assuming current PV panel efficiency).
⁴ This value represents the Shale City project described in the wind section of Chapter 6.
⁵ This range is based on technically available feedstock estimates. The point value is based on lower end of this estimate and represents electricity generation from currently obtainable feedstock. This feedstock is not currently a cost effective electricity generation resource at \$65 per bone dry ton, but future market conditions may make it viable.
⁶ This value represents the potential of electricity generation added to Emigrant Dam and projects found to be feasible in Talent Irrigation district.
⁷ This value represents the estimated electricity generation based on the most feasible feedstock sources (food processing, supermarkets, and schools).
⁸ No electricity generation resources are available in the study area, but thermal resources are available.
⁹ The existing biogas resource is already utilized at Dry Creek Landfill to generate electricity. No other cost-effective resources are available at the closed landfills in the area.
 Renewable Energy Assessment for Jackson and Josephine Counties (December 2011)

Energy Conservation

GOAL: Reduce Energy use in Talent by 30% by 2020.

Reduce energy costs for businesses and residents by \$1.9 million by 2020.

Every year, Talent residents, businesses, and city operations spend over **\$5,750,667.51** dollars on energy, not including natural gas cost. Every household in Talent spends an average of **\$1,202.75** on electricity alone in Talent. Most of those financial resources are leaving our community and paying for out of state coal plants.

Energy efficiency and conservation are some of the most cost effective approaches for reducing climate emissions and energy costs in buildings. Efficient housing has lower utility and maintenance costs. Investments in energy conservation also have high outputs in terms of local job creation.

According to the 2012 Rogue Valley Renewable Energy Assessment, there is a potential to reduce electricity use in the Rogue Valley by 24% through simple energy efficiency measures like weatherizing homes, replacing lighting in commercial buildings, upgrading windows, and more. In addition, for every one million dollars of investment in energy efficiency and average of 10 new jobs are created in our communities with an associated \$400,000 economic output.

After a thorough review of many different plans and recommendations including the [Cleveland, Ohio Climate action plan](#), the [Carbon Neutral Cities Alliance Report](#), the [Rogue Valley Renewable Energy Assessment](#), the [Department of Energy planning resources](#), we have developed the following recommendations for actions to move forward in Talent.

Opportunities for Action

According to ENHABIT, an Oregon nonprofit working to help single-family, owner-occupied homes reduce their energy needs, 837 homes in Talent are eligible to participate in their program. This entails a free energy audit, connecting local contractors to homeowners, and helping homeowners access loans and incentives for energy efficiency upgrades.

According to the Energy Trust of Oregon, an Oregon nonprofit whose mission is to reduce energy use in Oregon, 209 owners of manufactured homes in Talent have participated in an Energy Trust program that provides incentives and rebates to seal home ducts and perform basic energy efficiency and weatherization upgrades. At least 300 more homes in Talent could qualify for this program, which saves residents money and keeps money in our local economy.

There are many additional existing free programs, grants, and loans that are available to Talent residents, businesses, and farms to save energy. These include programs like:

- Free weatherization programs for low-income residents through ACCESS.
- Free Energy Saver kits and LED light bulbs through the Energy Trust of Oregon
- Matching grants to upgrade irrigation pumps from the USDA.

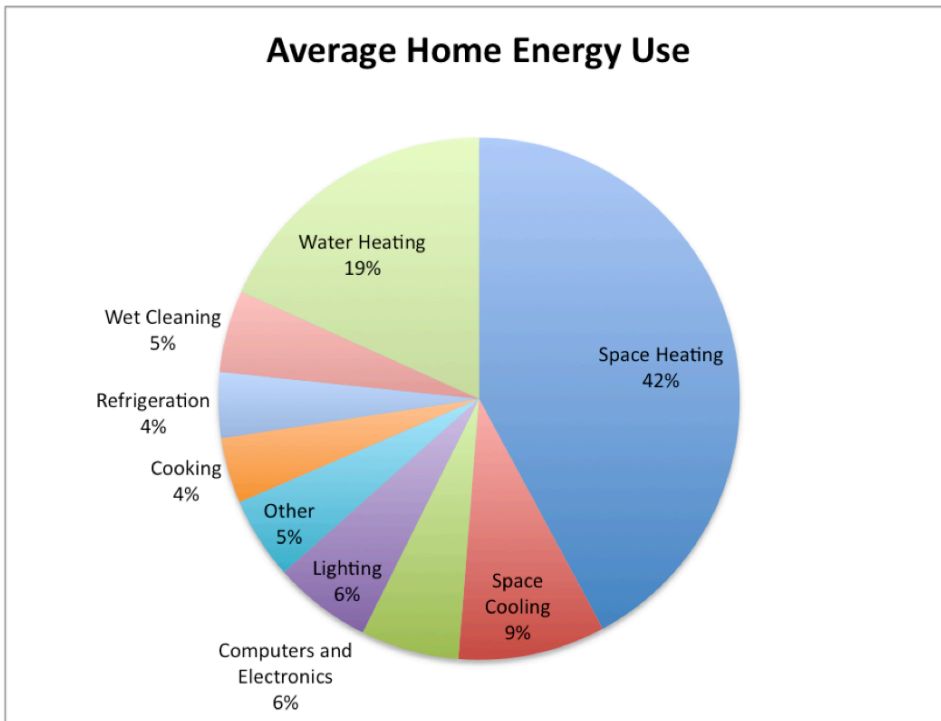
Home Energy Use Overview

Residential energy use is the largest source of electrical energy use in Talent. Since we don't have data separating out the usage between residential and non-residential gas use, for this section we are going to focus on electrical energy use -- we recommend The City work with Avista to get better data on the breakdown between residential and non-residential gas use.

The chart below shows the breakdown of energy use in the average home – about 70% of the energy used in the average home goes to space heating and cooling and water heating. Reaching a 30% reduction in energy use in our community will be challenging, but possible.

There are well-established actions that have proven valuable in major energy conservation efforts. These include:

- Replacing older appliances for newer, energy-efficient ones
- Weatherizing or replacing windows and doors
- Upgrading water heaters with more efficient units
- Insulating or improving home insulation
- Upgrading lighting with LED bulbs
- Installing new HVACs
- Etc.



Following are the team's recommendations to achieve the energy conservation goal for Talent.

Energy Conservation Recommendations at a Glance

The recommendations below are for The City, the community, the school district, and for local businesses. We recommend The City officially adopt recommendations with a “Municipal” designation.

OBJECTIVES	SECTORS Municipal Community Business	ACTION	WHO WILL COMPLETE THE TASK?	FINAL DELIVERABLE	WHAT IS NEEDED FROM THE CITY?
Retrofit and renovate existing buildings	M, C	1. Support programs and policies to retrofit and save energy in residential buildings.	The City		Communications Plan and implementation
	M, B	2. Support programs and policies to retrofit commercial and industrial buildings by publicizing energy efficient resources and incentives that are already available to builders.	The City		Communications Plan and implementation
	M	3. Set a visionary example of energy conservation and supply in city owned buildings.	The City		Incorporate 30% target into City goals and plans. Shift new purchases away from fossil fuel vehicles.
Make green building the standard for all new constructions	M, C, B	4. Incentivize use of REACH codes in new construction, and support efforts to upgrade state building codes.	The City		Implement a meaningful incentive program
	M, C, B	5. Support the development of a skilled workforce by partnering with RCC, and local unions.	The City		Implement partnership and drive for results
Implement neighborhood level solutions	M	6. Make utility data easily accessible for residents and businesses, and encourage energy saving challenges.	The City, Rogue Climate		Work with utility companies to achieve outcome
	School District	7. Reduce energy use in schools in Talent by taking advantage of public purpose funds.	The City		Hold schools accountable for reaching goal
	M	8. Keep important green and open spaces free, and keep improving their quality. Support tree canopy, which can reduce overall community energy use. Require new construction landscaping to have climate friendly planting.	The City		Adjust The City's master plan accordingly
Support County and State policies	M, C, B	9. City officials and community groups advocate at the county, Public Utilities Commission and state level to advocate for climate friendly energy policies.	The City, Rogue Climate		Drive for results

OBJECTIVE: Retrofit and renovate existing buildings

Action 1. Support programs and policies to retrofit and save energy in residential buildings.

There are many free and low cost programs that already exist for Pacific Power customers in Talent to save energy. Recommended steps include:

- Publicize the resources offered by ACCESS and The Energy Trust of Oregon through city and community channels.
- Increase uptake in Energy Saver Kits from Pacific Power.

- Encourage renovation of residences in geographic clusters. Begin by connecting neighborhoods of manufactured and lower income housing to free and low-cost resources.
- Launch a community campaign to encourage homeowners, property managers, and landlords to develop plans to increase energy efficiency in their Talent residences.
- Develop energy standards and guidelines for residential properties.

Action 1 Outcome.

1. At least 50% of the community residents are aware of the energy-saving programs and policies available to retrofit residential buildings.
2. An energy standard guideline for residential properties is in place.

Action 2. Support programs and policies to retrofit commercial and industrial buildings by publicizing energy efficient resources and incentives that are already available to builders.

Develop a partnership with the Talent Chamber or other key business leaders in Talent to promote energy saving opportunities and connect businesses with resources through the Energy Trust of Oregon.

Action 2 Outcome.

1. At least 50% of the commercial and industrial community are aware of the energy-saving programs and policies available to retrofit their buildings.
2. An energy standard guideline for commercial and industrial properties is in place.

Action 3. Set a visionary example of energy conservation and supply in city owned buildings.

The City of Talent has already shown great leadership in ensuring that new buildings are leading the way in energy efficiency. Recommended steps include:

- Conduct energy audits on all city owned buildings.
- Set energy reduction goals on a site-by-site basis that incorporates both energy management and energy efficiency upgrades in all municipal buildings.
- Phase all street lights out for LED lighting. (Already in the works)
- Develop a LED replacement program for local residents. The City could potentially front the cost of the light bulbs and be reimbursed by the Energy Trust of Oregon.
- Phase out the use of fossil fuel vehicles owned by The City.

Action 3 Outcome.

1. The City reduces its energy consumption by 30% by Year End 2020 compared to 2015 baseline.
2. All new vehicles purchased by The City are non-fossil fuel.

OBJECTIVE: Make green building the standard for new construction

Action 4. Incentivize use of REACH codes in new construction and upgrade the state building codes.

The Reach Code is a statewide optional energy construction standard. In 2009, the Oregon Legislature approved Senate Bill 79, which directed the Oregon Building Codes Division to adopt standards for optional increased energy efficiency in buildings newly constructed, reconstructed, altered or repaired. These collective energy efficiency standards were to be separate from the state building code and known as the “Reach Code”. Reach Code standards were created as an optional path for high performance energy efficient construction and were required to be economically and technically feasible for implementation. Similar programs include “LEED certification.”

While cities cannot mandate codes that are higher than statewide codes, The City of Talent could incentivize new buildings that use Reach Codes⁵ or LEED Certification levels through expedited permitting processes, public recognition and promotion. In addition, any building projects that receive direct assistance from The City should be held to high green building standards.

Action 4 Outcome.

1. An incentive program is in place that rewards meeting or exceeding Reach Codes and/or LEED Certification.

Action 5. Support the development of a skilled workforce by partnering with RCC, and local unions.

In informal conversations with local contractors, we heard that there is a lack of a qualified workforce for energy efficiency projects in the Rogue Valley. During the housing crisis, many contractors left the area or retired, and new contractors are not being trained as quickly as needed through local programs.

We recommend that both community groups, and The City advocate for increased training opportunities in the community. Large-scale deployment could occur through trainings at RCC as is done at Lane Community College’s Energy Management Program, or in partnership with local labor unions. To ensure that jobs that are developed in the energy conservation field in our communities are good jobs, High Road Standards should be implemented for city contracts and in programs promoted by The City. (See Appendix C for High Roads Standards)

We recommend connecting high school students with apprenticeship programs, like those offered by IBEW, the electricians union.

Action 5 Outcome.

⁵ 2016 Reach Codes: <https://www.oregon.gov/bcd/codes-stand/Documents/reach-16reachcode.pdf>

1. A plan is in place to reinstate training programs to develop energy efficiency workforce in the Rogue Valley.
2. The High Road Standards are implemented for City contracts and programs promoted by The City.

OBJECTIVE: Implement neighborhood level solutions

Action 6. Make utility data easily accessible for residents and businesses, and encourage energy saving challenges.

While community members currently have access to their energy use through monthly bills, or online, many people have a hard time making sense of what the numbers mean. A few options to make utility data more accessible to community members and to encourage community challenges include:

- Publish a monthly community energy meter or an energy dashboard in the TNR, City News, or Monthly Bills, etc.
- Research ways to help Talent residents easily access own utility data through real time channels like home energy monitors.
- Encourage Pacific Power and Arcadia to include savings vs. 2015 baseline in their monthly statements.

Action 6 Outcome.

1. A standard “Energy Efficiency” section is published in the TNR that depicts progress towards the goal.
2. Energy savings are reported on the monthly energy statements sent to customers.

Action 7. Reduce energy use in schools in Talent by taking advantage of public purpose funds.

The Talent – Phoenix school district has already conducted energy audits on all five schools paid for by “Public Purpose Funds⁶.” We recommend the school district:

- Set energy reduction goals on a site by site basis for all school district buildings that incorporate both energy management and energy efficiency upgrades
- Share progress with the Talent community on energy and money saved.
- Incorporate climate and energy curriculum into the school curriculum.

Action 7 Outcome.

1. The Talent School District achieves a 30% energy reduction by 2020.

⁶ Public Purpose Funds: <http://www.oregon.gov/energy/SCHOOLS/Sb1149/Pages/index.aspx>

OBJECTIVE: Support Local, County, and State policy changes for Clean Energy

Action 8. City officials and community groups advocate at the local, county, Public Utilities Commission and state level to advocate for climate friendly energy policies.

The work that community members and The City are doing will continue to be influenced by county, state, and federal policies. These policies are vital to ensuring the transition to clean energy and that greater energy efficiency happens quickly and benefits all members of our community. Local governments play an important role in influencing decision makers at the state level. We recommend The City partner with community groups to advocate for key climate and energy policies at the state level including:

- **Upgrading Business Codes:** In the 2017 legislative session, there may be a bill to upgrade the state building codes to ensure that all new buildings are “Net Zero Ready” by 2030. We recommend supporting this initiative and ensuring new buildings are wired for car charging.
- **Passing the Healthy Climate Bill:** In 2016, the Healthy Climate Bill was proposed to the legislature. This bill would have put a cap on climate pollution, required polluters to pay for their pollution and then reinvest those proceeds into projects like energy efficiency and renewable energy development. A policy like this would provide much needed public investment into a clean energy transition.
- **Supporting complementary transportation and affordable housing policies.** It is imperative that a transition to clean energy doesn’t displace or impact low income or vulnerable communities. We support complementary policies like inclusionary zoning and transit funding that can continue to make our community livable for everyone while reducing climate pollution.

Action 8 Outcome.

1. City officials and community groups demonstrate their support to clean energy and energy efficiency measures.

LEADING BY EXAMPLE: The City of Talent

The New Talent Community Center was built to be highly energy efficient. The roof has highly reflective roof shingles and was built “solar ready”. The City has applied for grants funds to install solar on the roof. It has a highly efficient heating and cooling system (HVAC), an energy management system that is controlled by building occupancy, low flow water fixtures and more.



LEADING BY EXAMPLE: Phoenix Talent School District

The school district recently conducted energy audits on all five of its facilities. The audits identified that the most cost effective actions were to replace the heating and cooling systems, called “HVACs”. Talent Elementary and Phoenix High School will both be upgrading their HVAC systems. It will cost \$31,000, which will be paid back in three years. **After that, the school will save about \$10,200 / year on energy bills.** The audits and the HVAC upgrades are all paid for by utility incentives available to schools through the “Public Purpose Fund.”

LEADING BY EXAMPLE: Holiday Gardens

Holiday Gardens retrofitted 56 apartments for energy efficiency in 2016. Using incentives offered by Energy Trust, Christmas Development replaced hot water heaters, refrigerators and stoves with Energy Star appliances. They also installed HVAC mini-split units, energy efficient windows, hearty board siding, energy efficient exterior lighting, and water saving toilets and faucets. One renter has already reported saving 30% on his heating bill.

Energy Generation

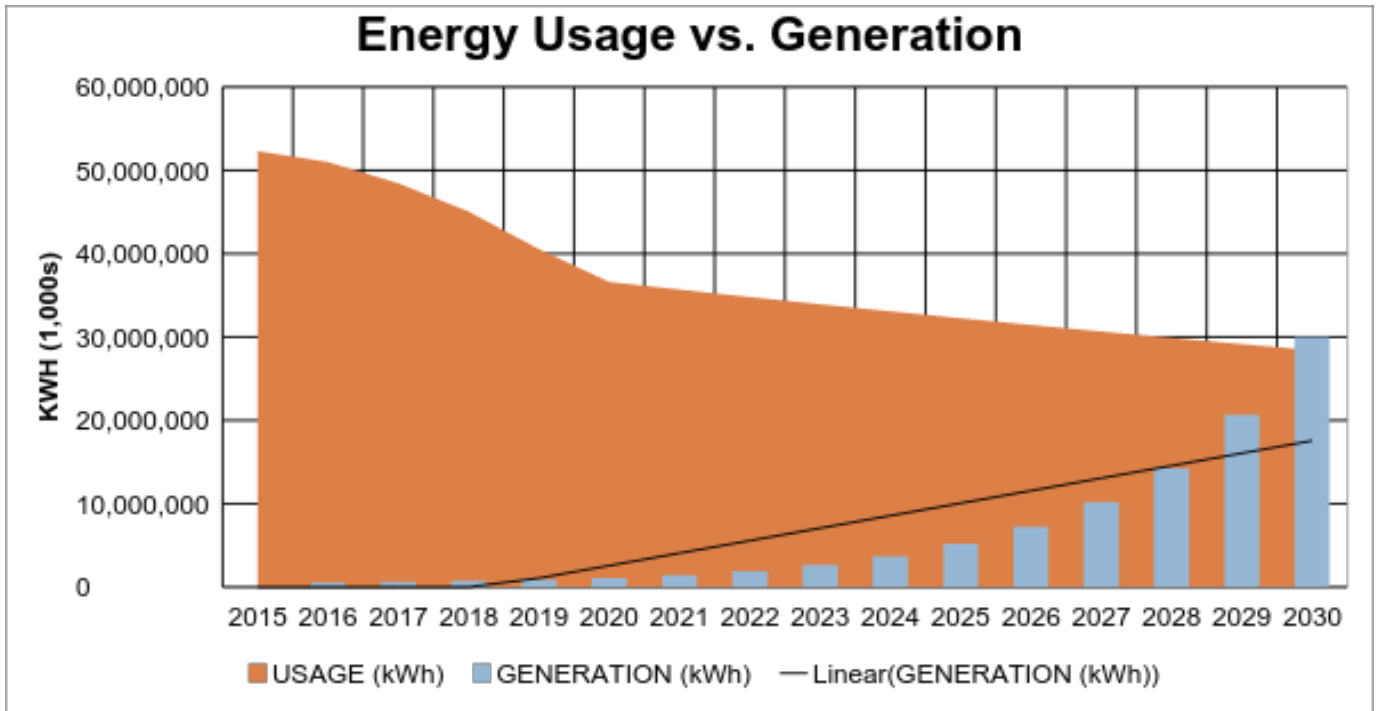
GOAL: Achieve 100% clean renewable energy source for Talent by 2030 while keeping prices affordable and preserving our rural quality of life.

Talent residents have demonstrated a high commitment to clean energy in their own lives through participation in renewable energy programs such as Blue Sky or Arcadia Power. Over 15% of Talent residents voluntarily pay a little more for clean energy, one of the highest rates in the state.

Over the last few years, The City of Talent has also taken strides towards transitioning to clean energy. The City developed the new community center to be solar ready, and in the last year started to purchase a percentage of city energy through the Blue Sky program for businesses.

To fully transition our community to clean energy renewable energy sources by 2030, we will need to take action on a local, state, and federal level to change policies and fundamentally transform how our energy system works. The transition to clean energy will be a long-term process and we will need to continue to update the plan as technologies improve and policies shift. It is vital that this transition to clean energy works for all members of our community, and makes Talent a more affordable place to live in the long term.

The graph below demonstrates a potential trajectory to reach our goals of a 30% reduction in energy use by 2020 and an increase in clean energy of 70% by 2030.

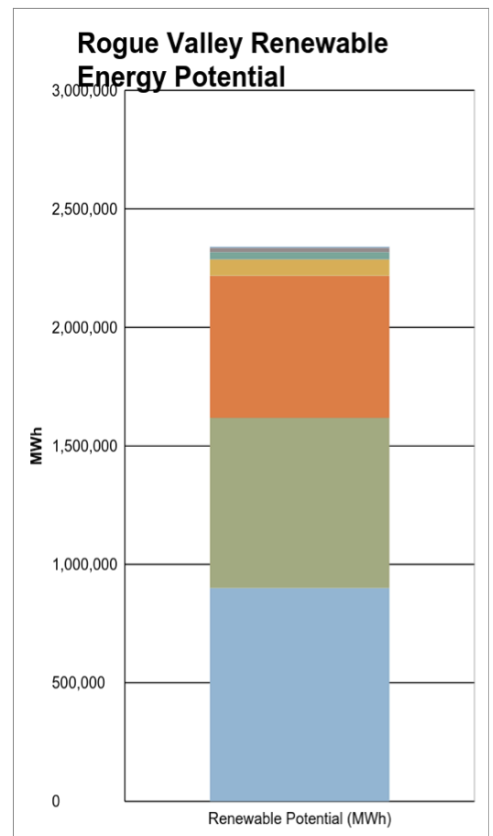


What is the potential for renewable energy in the Rogue Valley?

In 2011, Rogue Valley Council of Governments and other partners commissioned a study from the Good Company in Eugene to calculate the potential for renewable energy in the Rogue Valley. They identified energy efficiency and solar energy to be the two largest potential target areas. They also identified more site-specific opportunities for micro hydro, wind, anaerobic digestion, and biomass in the greater Rogue Valley. See Appendix 1 for the report executive summary.

The figure to the right describes the findings of this report. The generation potentials shown in Figure 1 do not represent the maximum generation potential; rather they represent what the authors thought was an average or achievable portion of that maximum.

Existing generation capacity (dominated by hydropower) makes up the largest portion of generation, followed by the potential energy efficiency resource.

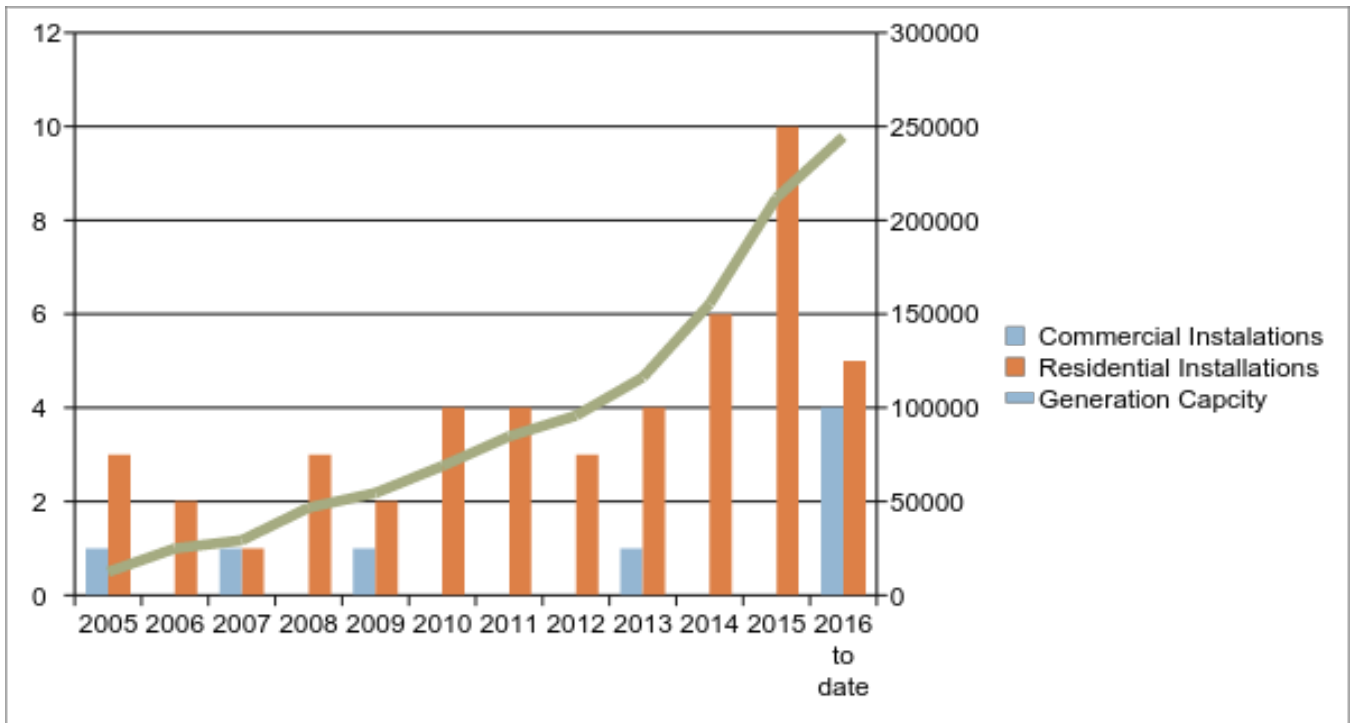


A third tier of generation potential is represented by solar. The report found that there is the potential to generate 40% of the energy needs of the Rogue Valley through rooftop solar, if all suitable roof space was covered. In the original findings, due to the high cost of solar at the time, only 5% of the total potential was identified as feasible. Because of the rapid decline of the cost of solar over the past 5 years, the graph to the right includes the solar generation potential if 50% of all suitable roofs had solar on them.

A fourth tier of generation includes wind, biomass, hydropower and anaerobic digestion.

What is the current renewable energy generation in Talent?

A preliminary assessment of renewable energy generation in Talent based on the number of incentives that have been used by the Energy Trust of Oregon since 2005 has identified 53 total solar projects in Talent as of August 2016. There may be some installations that did not use Energy Trust of Oregon incentives that are not included in this graph, like solar projects that were installed as part of Pacific Power’s feed-in-tariff program that has now expired. These solar installations account for 266,522 KWh/yr of energy generation, or 0.35% of Talent’s total energy needs.



What renewable energy projects are currently being considered?

In addition to residential solar systems that are being installed, there are several larger solar projects and one micro hydro project that are currently being looked at under various financing mechanisms including grants, a solar cooperative, or a C-corporation.

Project	Generation Potential	Status
Talent Community Center	15kW	Blue Sky Grant Submitted
Brammo	3 MW	Assessment Complete. Business Plan in Development.
Oregon Shakespeare Festival	To Be Determined	To be coordinated with Host and Provider
WISE Micro Hydro	To Be determined	To be researched

Zooming in on Solar: Types of Solar Projects

There are many different ways to finance and develop solar projects, and different projects have different benefits to the community. The list below captures a few of the many ways that solar projects can be structured.

Residential Solar: The term is generally applied to single residence buildings with a rooftop solar panel system. (Small-scale systems: usually 10Kw or less and grid tied). In the future this term may expand to include solar roof shingles.

Commercial Solar: A term applied to a variety of commercial buildings that incorporate a solar panel system on their rooftops and is larger in scale than residential and can even reach megawatt size. Also usually grid tied. Commercial rooftops are often flat or low sloped and the building energy demands higher than residential.

Utility Scale Solar: Utility scale solar systems are much larger than residential or commercial rooftop systems. Utility systems are usually ground mounted and can produce ten - hundreds of megawatts. They may be called: solar parks or farms or power stations and are capable of providing energy supply to large numbers of consumers. Generated electricity is fed into the transmission grid powered by central generation plants (grid-connected or grid-tied plant), or combined with one, or many, domestic electricity generators to feed into a small electrical grid (hybrid plant). In rare cases generated electricity is stored or used directly by island/standalone plant. [20][21] PV systems are generally designed in order to ensure the highest energy yield for a given investment. Some large photovoltaic power stations such as Solar Star, Waldpolenz Solar Park and Topaz Solar Farm cover tens or hundreds of hectares and have power outputs up to hundreds of megawatts.

3rd Party Ownership: Third-party financing is increasingly a preferred means of financing on-site renewable energy generation, particularly for commercial customers. Under these types of arrangements, a resident or business hosts a renewable system that is owned by a separate investor. Third-party financing arrangements are particularly beneficial for entities that cannot claim tax credits (such as governments, schools and nonprofits) and for entities that either lack initial investment capital

to purchase a system or the desire to own and maintain an on-site renewable energy system. Under a third-party financing arrangement, an investor monetizes available incentives (e.g. tax credits, rebates and depreciation deductions). The investor then sells electricity produced by a system to a host entity at lower rates than the host customer may otherwise be able to benefit from, if the customer were to invest directly in the system.

Third party financing mechanisms include both power purchase agreements (PPA) and leasing arrangements. With a PPA, the host agrees to purchase all the energy produced onsite. Any excess generation is typically subject to a net metering arrangement between the host customer and a utility. With a leasing arrangement, the host agrees to pay a fixed monthly fee that is not directly based on the amount of on-site generation.

For economic reasons, most small-scale renewable energy facilities in the country are owned and installed by third parties. It is often easier for third parties to take advantage of federal credits and business depreciation, while relieving the property owner of the responsibility of financing the system and building it.

Community Solar: Community or shared, solar means multiple people get electricity from a mid sized solar array, offering a convenient option for consumers who want to buy power from a carbon-free resource. Community solar has overcome the barriers for people who want to invest in solar energy but rent their home, live in an apartment, or have too many trees shading their roof. Customers can own or lease solar panels in a large community array and receive the credit on their electric bill. State laws may vary however.

Community Solar in Oregon: Legislation passed March 2016: Senate Bill (SB) 1547. This bill requires Oregon's investor-owned utilities to eliminate coal-fired resources from Oregon's energy mix by 2030 and to increase the use of clean energy to 50 percent by 2040. Importantly for this conversation, SB 1547 also directs the Commission to establish a community solar program in Oregon through the new Community Solar Projects law (<http://www.globalpowerlawandpolicy.com/2016/04/next-steps-for-community-solar-after-the-passage-of-oregons-landmark-clean-energy-legislation/>)

Solar Cooperative: Can have overlap with community solar. Once again state laws may vary and/or be in flux. Once again there may be various types of solar coops. A cooperative is a group of people acting together to meet the common needs and aspirations of its members, sharing ownership and making decisions democratically. **Co-ops can be owned by workers, residents, consumers, farmers, the community or any combination of the above.** What they have in common is that they are not about making big profits for shareholders, but rather circulating the benefits back to their member-owners, and these benefits ripple out to the broader community.

Solar Farm: Can be privately owned, government owned, non-profit or cooperatively owned. A community solar farm or garden is a solar power installation that accepts capital from and provides output credit and tax benefits to individual and other investors. In some systems you buy individual solar panels, which are installed in the farm after your purchase. In others you purchase kW capacity or KWh of production. The farm's power output is credited to investors in proportion to their investment,

with adjustments to reflect ongoing changes in capacity, technology, costs and electricity rates.

Companies, cooperatives, governments or non-profits can operate the farms. Once again each state may have different laws. Very often the land that the farm is on is leased from someone.

SOLAR FACTS

- There are at least 53 solar projects in Talent that generate 266,522 Kwh of solar.
- Solar creates 14 jobs per million dollars invested.
- To replace **ALL**⁷ of Talent's future goal of 30 % reduction from current electricity use with solar using today's technology would require between:
 - 37-39 MW
 - 112,836 and 132,071 panels
 - 224 to 273 acres of land or roofs and dependent on the mix of large (> 20MW) and small (< 20 MW) projects
(derived from NREL report)

Financing Opportunities

Renewable Energy projects can be financed in a variety of ways including grants, incentives, tax credits, and loans. The table below is a list of potential funding sources for renewable energy development. Individual installers or solar developers will also generally be able to identify the most current sources of potential funding for a particular project. Many developers or installers can also provide a free solar assessment and financial assessment regarding a particular project. The chart below is subject to change.

⁷ This plan calls for a 30% reduction in energy so the energy needs are calculated as 52 MW X.7 = 36.4 MW:<http://www.nrel.gov/docs/fy13osti/56290.pdf>

Type	Source	Amount	Notes
Grants	Oregon Department of Energy: RED Grants	Up to \$250,000 but not more than 35% of a project.	
	Blue Sky Renewable Grants	Can fund projects smaller than 10MW	Talent has applied for a Blue Sky grant to fund a solar project on the new community center.
	USDA Rural Renewable Energy Grants	\$2,500-\$500,000, but not more than 25% of total system costs.	The USDA can provide both loans and grants for renewable projects in rural areas installed by small businesses or agricultural producers. All systems in Talent could qualify.
Tax Credits	Federal Energy Investment Tax Credit (FITC)	Covers 30% of the cost of a solar installation before December 2016. May be extended.	
	Oregon Residential Energy Tax Credits (RETC)	\$1.50/watt, up to \$6,000 per solar-electric system per home per year.	If an individual doesn't have the tax liability to take the tax credit, someone else can take the tax credit to help pay for the cost of the solar project.
	Pacific Power Cash Incentive for Businesses	\$0.90 per watt for systems up to 150 kw, with an \$80,000 maximum incentive.	Pacific Power customers may be eligible for incentives through the Energy Trust of Oregon's (ETO) Solar Electric Buy-Down Program.
	Residential Incentives	\$0.65 / watt. The incentive is capped at \$6,500.	
Loans	Craft 3, Seeds for the Sol	\$25,000 – 5 Million	Craft 3 provides low interest loans for renewable projects in Oregon.
			Seeds for the Sol provides 4-year, interest-free loans to residents wanting to install solar panels in their property.
3rd Party Installers	Solar projects can also be installed and financed by third party developers. An example is Solar City, where they will develop the project and pay for it, and then give a specific energy rate to the site owner for a specific length of time.		

Energy Generation Recommendations at a Glance

OBJECTIVES	SECTORS Municipal Community Business	ACTION	WHO WILL COMPLETE THE TASK?	FINAL DELIVERABLE	WHAT IS NEEDED FROM THE CITY
Increase Clean Energy Now	C	1. Inventory current clean energy generation in Talent and surrounding areas. Assess opportunities for clean energy generation in Talent.	GT (Generation team)	Completed	N/A
	M, C	2. Set short term goals and targets for clean energy installation. Include emergency preparedness goals for key buildings.	City employees for emergency plan. Community and business for clean energy installation.	Have a plan in place for each city building as to the emergency power needs and how to meet those needs in a disaster. Increase rooftop solar by 10% over last year.	Survey of city buildings, assess emergency power needs.
	M	3. Continue to streamline permitting processes for clean energy installation.	City employees	Permitting for solar is not difficult right now... building codes changed to require conduit for solar, roof trusses designed for solar load.	Change building codes to encourage rooftop solar.
	C	4. Identify opportunities to make renewable energy accessible for low income households by partnering with groups like " Seeds for the Sol " or " Solar for All ".	GT, communication team	materials developed and ready to educate community members about program availability (with the communication team)	N/A
	C, M	5. Enroll energy users in city limits and in unincorporated Talent in clean energy utilities or energy providers.	All teams can be a part of this action.	Increase participation in clean energy programs by 10% over last year. funding options in place to allow low income households to participate without increased spending on their part.	N/A Shouldn't the city push this with utilities to get bulk pricing?
Plan for a More Independent Energy Supply in the Future	M, C	6. Study the feasibility of developing an independent utility company, implementing 'Community Choice Aggregation', or purchasing renewable energy directly from producers.	GT	By the end of the year, have the information gathered to review the feasibility of our own power utility and other options for more energy resiliency.	Not sure, would the city own the utility? Community owned? Either?
	M, C	7. Work with schools and/or	Communication	a classroom	N/A

OBJECTIVES	SECTORS Municipal Community Business	ACTION	WHO WILL COMPLETE THE TASK?	FINAL DELIVERABLE	WHAT IS NEEDED FROM THE CITY
		Makers Groups to generate more interest and creativity about independent clean energy.	team	presentation is ready to take to local schools. x number of Schools in the area contacted and classrooms visited. (upper grade levels?)	
	M, C, B	8. Recruit renewable energy projects to the area, like a solar cooperative, micro hydro project, or biogas digester.	GT	By the end of the year have made contact with solar cooperatives, organizations that develop solar farms. Contact funding sources for the above.	N/A
	M, C	9. Hire a 0.5-1.0 FTE position at the City to oversee clean energy and conservation projects.	M	Funding in place by the time the RARE person's time is completed.	Find the funding for this position, hire a person(s).
Support County and State Policies	M, C, B	10. Lobby state legislators to speed transition to clean energy and pass policies for more local energy autonomy.	Communication team	By the end of the year, strategies in place to connect with state leaders to change policies pertaining to clean energy production, distribution and funding.	Mayor and city council support.

OBJECTIVE: Increase Clean Energy Now

Action 1: Inventory current clean energy generation in Talent and surrounding areas. Assess opportunities for clean energy generation in Talent.

To assist in goal setting and tracking energy generation in Talent, we recommend that two different assessments be done regarding solar in Talent and that a program similar to Seeds For The Sol from Corvallis is started in the community..

- A complete assessment of current renewable energy production. How many KWh are currently being produced in Talent?
- An assessment of the solar potential of the area looking specifically at residential roofs, commercial and municipal roofs, parking lots, city buildings and strategic open spaces. If we have a list of possible projects that are ready to go, our community will be able to take advantage of grants, incentives, and financing opportunities.
- Seeds For The Sol (SFTS) in Corvallis, OR, provides interest--free loans to residents wanting solar panels in their property that cannot afford the required down payment. A large portion of this

down payment is reimbursed to the homeowner in the form of tax credits by the Federal and State government after the homeowner files their next year tax return. SFTS bridges the gap by providing interest-free loans to the homeowner who pays the loan back from the proceeds of the tax rebates. The loan money is then lent to another homeowner and the cycle repeats itself. Furthermore, SFTS has a program for homeowners with no or limited tax liability to sell the credits to individuals needing the tax deductions at \$0.90 cents on the dollar. At the end of the cycles, the funds are returned to the original source.

Action 1 Outcome:

1. All current renewable energy production is documented and available to the teams.
2. All potential sites for solar energy generation are inventoried, their generation potential recorded and available to the teams.
3. An interest-free loan program (SFTS or alike) is in place and available for residents to install solar panels in their property, and the first round of loans have been issued.

Action 2: Set short term goals and targets for clean energy installation on city buildings. Include emergency preparedness goals for key buildings.

As in the energy efficiency section, we are looking to The City to set a visionary example for renewable energy development. We recommend that The City set short term goals and targets for clean energy installation on eligible city buildings and include emergency preparedness goals. For example, certain city buildings should be able to have a battery backup that can be activated in the case of an emergency.

Action 2 Outcome:

1. A detailed plan for installing clean energy generation equipment in all city buildings.
2. A completed emergency preparedness plan related to energy.

Action 3: Continue to streamline permitting processes for clean energy installation.

Recently The City has joined the state's e-permitting system. Installers can apply and pay, track progress, and even schedule inspections online. We recommend continuing to look for opportunities to remove barriers to installation.

Action 3 Outcome:

1. Identification of procedural/legal roadblocks to clean energy installation.
2. A detailed action plan to remove each barrier so that clean energy installations can be streamlined.

Action 4: Identify opportunities to make renewable energy accessible for low income households like partnering with “Seeds for the Sol” or “Solar for All”.

Across Oregon and the county, community groups are working to ensure that low-income folks aren't excluded from the benefits of a transition to renewable energy. We support developing partnerships with existing non-profits such as Solar for All or Seeds for the Sol that help folks get solar by providing zero interest loans, or connecting them with partners that can take the tax credits if an individual's tax liability is not high enough. We also recommend providing information on solar to landlords connect rental units and apartment buildings with solar.

Action 4 Outcome:

1. A clear path is in place so that solar power is accessible to all members of the community.

Action 5. Enroll energy users in city limits and in unincorporated Talent in clean energy utilities or energy providers.

Over 15% of Talent residents, and The City of Talent already participate in programs to get clean energy from certified clean energy providers like Blue Sky or Arcadia Power by purchasing renewable energy credits. In the short term, while our community begins to develop local renewable energy sources, we recommend a switch to clean energy through enrollment in a renewable energy credit program. We recommend The City identify opportunities to negotiate with the clean, renewable energy companies for a bulk-pricing scheme that results in no increase in energy bills for the community.

Action 5 Outcome:

1. The City negotiates a bulk-purchasing rate to switch Talent energy users to clean energy with a certified renewable energy provider.
2. 50% of Talent residents switch to 100% clean energy while paying the same price.

OBJECTIVE: Plan for a More Independent Energy Supply in the Future

Action 6. Study the feasibility of developing an independent utility company, implementing 'Community Choice Aggregation', or purchasing renewable energy directly from producers.

Integrated into our goals of transitioning to clean energy include boosting our local economy with jobs and revenue from the emerging clean energy economy while keeping energy prices affordable for all. We recommend that The City establish a task force to investigate options for purchasing renewable energy for the community in the short term including:

1. Bulk purchasing of Renewable Energy Credits for both city operations and the community
2. The feasibility of implementing Community Choice Aggregation (CCA) in Talent if legislation is passed to support CCA's in Oregon.
3. The feasibility of developing a renewable energy cooperative or a municipally owned utility

Action 6 Outcome:

1. The steps for creating an independent Talent Utility Company (TUC) are defined, understood and made available to the appropriate decision makers.
2. The feasibility of a TUC is defined and documented.
3. The feasibility of a Talent CCA is defined and documented.
4. Potential bulk purchasing contracts are ready for evaluation and approval by The City Council.

Action 7. Work with schools and/or Makers Groups to generate more interest and creativity about independent clean energy.

A key action for The City, in conjunction with the School District, is to help young children understand the pros and cons of energy use, conservation and generation. Children represent the future of our community, making it imperative that they grow up educated and aware of the opportunities, challenges and rewards of renewable, local energy. We recommend that appropriate content is created in partnership with the School District to expose our children early to this critical topic and that the material is incorporated into the standard curricula for the Talent schools.

Action 7 Outcome:

1. Students in the local school system are aware that the community is taking action to reduce energy consumption and to locally generate or to acquire energy from clean, sustainable sources.
2. Community Makers use their talents and skills to support efforts to locally generate or to acquire energy from clean, sustainable sources.

Action 8. Recruit renewable energy projects to the area, like a solar cooperative, micro hydro project, or biogas digester. Develop community standards for renewable energy projects.

With changing energy markets, southern Oregon is being looked to as a location for rapid solar development. We want to ensure that our community is ready to take advantage of this solar boom in a way that benefits our community as a whole. We recommend actively recruiting renewable energy projects including community or cooperative solar, micro hydro or biogas projects to the area and developing community standards for evaluating potential projects by. Community standards could include goals such as:

- Evaluating sites for the best use of the land
- Ensuring that a local workforce is used as much as possible
- Prioritizing projects that include training opportunities for folks that have traditionally been left out of the renewable energy industry like women, and communities of color
- Prioritizing US made solar panels
- Working to ensure that not only wealthy members of our community reap the benefits of the renewable energy economy

While community standards can't be applied to all projects, for projects that The City or Rogue Climate Talent is actively supporting, we recommend committing to a set of community standards.



Action 8 Outcomes:

1. A full inventory of potential generation sites is completed.
2. Potential developers are identified and preliminary assessments/contracts and financing are in place for local clean energy generation projects that use local resources and American materials.

Action 9. Hire a 0.5-1.0 FTE position at The City to oversee clean energy and conservation projects.

In 2016-2017, the RARE fellow will fill this position, however in coming years we recommend setting aside funding for a more permanent position.

Action 9 Outcome:

1. Stable City funding is identified for coordinating clean energy and energy efficiency projects in the long term.

OBJECTIVE: Support County and State Policies

Action 10. Lobby state legislators to speed transition to clean energy and pass policies for more local energy autonomy.

State and federal policies regarding utilities, incentive, and greenhouse gasses will be vital components of moving forward a clean energy transition in Talent or preventing a transition from happening quickly. City governments, including city managers, city councils, and the Mayor have an important role to plan in advocating for state policies in particular. We have identified a few key policies that are vital to this transition that we would like to see the Cities active support on in years to come.

- **Community Choice Aggregation** is a state policy that would make it easier for Talent to purchase clean, renewable energy. It enables a community to pool its purchasing power and

decide where to buy energy from – it could be a local solar farm, an Oregon wind farm, or the existing local utility. Revenue could potentially be produced for The City if such a law were adopted.

- **The Healthy Climate Bill** was introduced into the state legislature last year and will be up again in 2017. This legislation would put a limit on climate pollution and require large polluters to purchase pollution credits. The revenue would then be directed into projects to help communities transition to clean energy and reduce energy use.
- **Community Solar Initiatives:** The public utilities commission is actively moving forward with rulemaking for community solar projects in Oregon.

Action 10 Outcome:

1. Statewide policies are passed that limit greenhouse gas pollution, and make it easier for community solar projects to happen, and for communities to have access to clean energy.

Overall Recommended actions for City Council:

1. Once approved by City Council, incorporate the proposed Year One Clean Energy Action Plan into city operations.
2. Direct city staff to implement Year One Plan.
3. Incorporate the Clean Energy Action Plan 2030 into the City's Master Plan.
4. Work with community groups to assist in implementing the plans.
5. Every six months, evaluate progress in implementing the plan and initiate action to prevent or correct shortfalls against achieving goals.
6. Communicate regularly with citizens regarding clean energy efforts (The Flash, website, or other visuals).
7. Advocate at the county and state level for policies that support an upgrade in building codes, resources for energy conservation efforts, rapid transition to clean energy, and the like.

What the community will undertake:

1. Maintain a robust team of residents active in implementing appropriate portions of the plan through volunteer service.
2. Coordinate with the City regarding communications and outreach in the community.
3. Work in partnership with the city to advance the goals of the plan.
4. Advocate at the county and state level for policies that support an upgrade in building codes, resources for energy conservation and generation efforts, and the like.

Stakeholders

Talent is a small, rural community in southern Oregon. Since residents consume almost 75% of Talent's energy, the community at large is the largest stakeholder. 23% of Talent's energy use is by commercial sources; the Talent business community is primarily comprised of a variety of small businesses with some larger entities such as the Oregon Shakespeare Festival and Brammo. (See 'Key Stakeholders' chart below.)

As of the 2010 census there were 6,066 people living in Talent. Talent is growing; in 2000 the population was 5,589. In the 2010 census residents were living in 2,639 households; of these 30.1% had children under the age of 18 living with them, 36.9% were married couples living together, 13.3% had a female householder with no husband present, 5.2% had a male householder with no wife present, and 44.6% were non-families. 33.5% of all households were made up of individuals and 14.4% had someone living alone who was 65 years of age or older. The average household size was 2.29 and the average family size was 2.96.

The median age in The City was 38.4 years. 24% of residents were under the age of 18; 8.4% were between the ages of 18 and 24; 26.4% were from 25 to 44; 24.9% were from 45 to 64; and 16.3% were 65 years of age or older. The gender makeup of The City was 46.6% male and 53.4% female. The 2010 census reported 2,420 housing units in Talent. Of these, 1327 were owner occupied and 997 were renter occupied. Average rent was \$656/month.

Rogue Climate Talent began engaging residential stakeholders in the spring and summer of 2015 by hosting Living Room Conversations where supporters invited their friends and neighbors in Talent to discuss what livability issues were important to them and what their dreams are for the clean energy future of Talent. Additionally, Rogue Climate Talent conducted over 100 surveys in 2015 by surveying Talent residents as they entered Ray's market, attended the Talent Evening Market or the Harvest Festival, and by going door-to-door. The survey asked people for their opinions on climate and energy issues, as well as on livability issues in Talent. Residents reported a high desire for clean energy, walkability, healthy local foods, more local business and a strong concern about climate change and drought.

In October of 2015, Talent was one of six rural, Oregon communities to win a grant from Sustainable Northwest and the Lake County Resource Initiative to put on the "Making Energy Work for Rural Oregon" workshop. As a way to publicize the workshop, Rogue Climate Talent brought various clean energy, energy efficiency and environmentally focused organizations and businesses together at the Talent Evening Market to engage stakeholders in the community. Over 70 residents attended the daylong workshop and many became involved with Rogue Climate Talent's efforts.

In July of 2016 Rogue Climate Talent hosted a Clean Energy Action Plan Open House where over 70 community members were informed about the current status of the clean energy plan and community input on the plan was gathered. For those unable to attend, an online survey was publicized in the Talent News and Review and via social media.

Ongoing news articles about the progress of Rogue Climate Talent's work are published both in The Flash and in the general content of the Talent News and Review paper.

Community stakeholders will continue to be engaged throughout the clean energy planning and implementation process. The chart below identifies local and regional stakeholders that will be key to implementing a clean energy action plan.

Communications Plan

Goals of the Outreach Team

The Outreach Team will incorporate key action steps in community engagement with residents and stakeholders of Talent.

The first goal of the Outreach Team will be to *enlist as many residents as possible in measurable energy conservation efforts through an Energy Efficiency Campaign*. This will be done by prioritizing older homes, manufactured homes and low-income residences in order to achieve the 5% energy conservation goal for 2017, with the greater goal of achieving 30% conservation by 2030. This Energy Efficiency Campaign will also include a Viral Marketing program to engage business and community leaders.

Our second goal is to *contact every household in Talent within two years of the adoption of the Year One Plan*. This will be accomplished through organizing and mobilization of a coordinated volunteer team working together with city committees, city staff, local organizations, and mutual stakeholders.

Our third goal will be to *collect, publish and review the results of our Energy Efficiency Campaign* in order to measure and provide feedback for our 2030 conservation and generation goals.

Residential Energy Efficiency Campaign

During the first Clean Energy Open House in July 2016, residents voted for an Energy Efficiency campaign as a priority action item for the City of Talent, alongside Community Solar and Options for Alternative Transportation. Since 75% of Talent's energy consumption from Pacific Power is from residents, the major focus of the Outreach Plan will be on a citywide residential conservation and energy efficiency program, alongside opportunities for residential solar or other clean energy generation opportunities.

The Outreach Team and City Staff will work together with the RARE student, community volunteers, city committees, and community organizations to effectively distribute information and increase participation in free energy efficiency programs through educational events, publications, tabling at festivals, information and sign-ups at City Hall, door-to-door inquiries, and workshops.

The team can host workshops to engage Talent residents and neighborhoods in projects that achieve our energy goals, raise educational awareness about clean energy and climate change, and provide

access to clean energy opportunities. These could include and are not limited to: rain barrel workshops, Map Your Neighborhood events, regional energy savings programs like Communities Take Charge, local organizations such as ACCESS, attending local festivals and events, providing information on tax credits for choosing energy efficient systems, energy consultations, weatherization programs, Energy Saver Kits, Blue Sky Renewable Energy, energy co-ops, energy audits, resident pledges, eco-neighborhoods, updating city resolutions or ordinances for building codes.

Recommended Campaign Programs:

- 1) ACCESS – Retrofit and save energy in existing buildings through free duct sealing manufactured homes. Information could be made available at City Hall.
- 2) Energy Trust of Oregon – Encourage residents to sign up for a Free Energy Savers Kit with free LED light bulbs and direct installation. Information could be made available at City Hall.
- 3) Clean Energy Open House – The team will host two annual public Open Houses for the community on the Clean Energy Plan to share updates, measurable impacts, and reviews of projects developed through the plan. These events will serve as informational and educational meetings for the public to connect and participate in workshops and energy resilient action steps.
- 4) Communities Take Charge – Encourage residents to participate in this online, self-monitoring energy conservation program that tracks savings for registered cities. Information could be made available at City Hall.
- 5) Talent Seeds for the Sol – Work with the city to create a residential solar program based off of the successful Seeds for the Sol organization in Corvallis, OR. Information could be made available at City Hall.
- 6) Harvest Fest 2017 Clean Energy – The subject of the 2017 Harvest Festival will be Clean Energy participation and opportunities. This could include friendly neighborhood competitions for energy savings.
- 7) Energize Rogue – Enroll residents this program to encourage HVAC /ductless heat pump installations.
- 8) Blue Sky or Arcadia Program – Enroll residents in Pacific Power’s Blue Sky Renewable Energy program for renewable energy certificates.

Branding of the Talent Clean Energy Campaign:

An integral component of the Outreach team will be to create a clean energy culture in Talent through branding of the campaign. The team will come up with a unified tag line and slogan that can be used for signs, buttons, bumper stickers, posters, and other materials that can be displayed by residents or businesses. Signs and posters used for branding are encouraged to display numbers and percentages of

energy conserved or generated for information, education, and increasing participation in the campaign.

Publication of Progress:

Articles can be published periodically in the *Talent News and Review* either by members of the Outreach and Communications Team through a city committee and/or city council, or under *Flash*, The City's page of city-related updates. The City of Talent website will post blogs of measurable successes and progress reports of stakeholder projects and quotas. Email newsletters will be sent throughout the year to update stakeholders, residents, and other interested parties of progress in events and projects.

The goals of the Energy Efficiency Campaign are to:

- 1) Retrofit # of homes in Talent.
- 2) Install LED replacements for a # of homes in Talent.
- 3) Enroll % of residents in Blue Sky.
- 4) Visit and canvas every neighborhood with a volunteer groups of neighbors. Contact every household within the city of Talent within two years.
- 5) Visioning process with the community, option of languages, child care, food provided, Open House, personal invitation.
- 6) Increase # of Attendees at RCT meetings and Open Houses and participation in events.
- 7) Coordinate with city staff to publish and publicize a clean energy action recommendation or step, local resource, or energy program every month.
- 8) Publicize numbers of neighborhoods participating or % of energy conserved or generated, competition.
- 9) Mobilize and organize volunteers and sign-ups.
- 10) Create a brand and slogan for the Talent Clean Energy Campaign, including a facebook campaign page, and informational materials or brochures that can be given to current and new residents and displayed at City Hall or other city buildings.
- 11) Coordinate effectively and respectfully with city staff, volunteers, city committees and commissions, residents, and local business and organizations.

The Outreach Team will implement these goals by:

- 1) Knock on every door in Talent.

- 2) Organize with City Staff, committees, volunteers, and local organizations to knock on every door in Talent, ongoing. Sign up with Pacific Power
- 3) Coordinate with the Chamber of Commerce to brand, Real Estate developers.
- 4) Shower timer - program in Eugene
- 5) Creating an effective data matrix for recording, reviewing, and publishing results and outcomes.

Success Metrics and Desired Outcomes:

- 1) # of Residential households that complete ACCESS retrofitting.
- 2) # of Residential households that participated in LED installations.
- 3) # of Residential households participating in Blue Sky or Arcadia Programs
- 4) # of solar residential installations
- 5) # of household HVAC installations
- 6) Out of # of people contacted, how many # signed up for a program? How many doors # knocked and actual contacts?

Viral Marketing With Community Stakeholders

- 1) Create a SLOGAN for Campaign with title and slogan.
- 2) Put together condensed and unified outreach material.
- 3) Development of ongoing educational program with the School District and Outdoor Program.

Stakeholders are defined as a party (either individual, organization, or business) who may be affected by the decisions, activities, or outcomes of the Clean Energy Plan goals and objectives. Broadly, all residents or organizations within Talent are defined as stakeholders. To encourage resident participation and community visibility, business and community leaders will be selected for engaging in a viral marketing campaign to meet the 2030 goals of conservation and generation.

The purpose of reaching out to stakeholders is to enlist their participation to help disseminate the Clean Energy Action Plan vision and to find out what they have already accomplished in terms of energy efficiency, conservation, and sustainability. The communications plan will require close communication between The City, Rogue Climate Talent, and other community partners.

Stakeholders will be evaluated based on the following criteria:

1. High Visibility – Stakeholder is an influential presence in the community of Talent with a prominent, public representation that is readily available to community members, such as downtown shops or active community organizations.

2. Number of Employees or Residents Involved – Stakeholder employs or serves a large number of people within Talent, such as Talent’s School District, Oregon Shakespeare Festival production facility, or Ray’s Food Place.

3. Energy Usage and Conservation or Generation Potential – Stakeholder has a high usage of energy, or has a strong potential or prior investment in energy conservation or generation efforts.

4. Commitment to Clean Energy – Stakeholder has demonstrated a commitment to clean energy objectives of conservation or generation.

Stakeholders will be grouped into the following categories:: Key Stakeholder; Community and Business Leader; Everyone else.

To meet the criteria of Key Stakeholder in the first tier, stakeholders must meet all or most of these definitions. To meet the criteria of Community and Business Leaders, stakeholders will have to meet some of these four criteria. All other stakeholders will fall under the third tier.

The first tier of Key Stakeholders will include 20 seats. They will be identified and contacted to help implement energy conservation and generation projects to fulfill the objectives of the Clean Energy Plan. These stakeholders will be engaged through personal, one-on-one appointments to develop current or future projects that serve as key energy generation or conservation efforts with a measurable impact. Key Stakeholders will be interviewed by our Outreach team using a survey, and categorized on actionable items based on results.

Twenty-five second-tier stakeholders, identified as Community Leaders and Business, will be contacted through a phone survey. The Outreach Team will call the stakeholders to survey the level of interest and participation in current or proposed clean energy projects and opportunities.

The third tier of stakeholders will include the rest of the population and will be contacted and engaged through email survey. The number of stakeholders in the third tier is unlimited.

In the first year of implementing a stakeholder tier, the Outreach team will be contacting many potential first and second tier stakeholders. The categorization of the first and second tier will be influenced by the results of surveying potential stakeholders throughout the community.

The goals of the Outreach Team with Community Stakeholders are to:

1) *Engage* committed stakeholders in individual, personalized, and measurable clean energy projects within the scope of their organization in relation to the plan;

- 2) *Inform* stakeholders of local and financially viable Clean Energy opportunities and projects as well as scientific data on climate change impacts for the Rogue Valley;
- 3) *Develop* a long-term relationship with stakeholders to demonstrate the measurable impact of clean energy projects and energy resilience over time.

The Outreach Team will implement these goals by:

- 1) Engaging in one-on-one surveying interviews with potential Key Stakeholders to initiate dialogue and develop projects that lead by example with measurable results.
- 2) Participating in phone surveys of potential Business and Community Leader second-tier stakeholders and prioritizing developing projects based on commitment and measurable impact.
- 3) Generate interest and development among third-tier stakeholders to participate in workshops, events, and education involving the Clean Energy Plan.

Success Metrics and Desired Outcomes:

- 1) Create complete Key Stakeholders and Community/Business Leader tiers.
- 2) Formulate short and long term stakeholder projects with individual stakeholders to meet conservation and generation goals.
- 3) Increase residential participation in energy efficiency and generation through creating an inclusive clean energy culture in Talent by publicizing stakeholder projects and successes to residents.
- 4) Host a Clean Energy Open House event with all stakeholders to share successes, energy conservation and generation progress, and encourage continued participation in further opportunities for involvement.

Overall Project Success Metrics

The overall success of this project will be determined in relation to the original vision that was laid out at the beginning of this plan. It is important to remember that this is just the start of a multi-year transition to cleaner energy and greater energy efficiency, and the progress and goals will need to be re-evaluated on a regular basis. We recommend evaluating and tracking success based on the following indications on an annual basis.

	Metric	Baseline	Annual Progress
GOAL: Conservation 30% Reduction of 2015 levels by 2020.	Total kBTU saved		
	# of completed home efficiency projects		
	# Energy Saver Kits installed		
	# of completed business, school, municipal efficiency projects		
	# of community members engaged		
GOAL: Renewable Energy Achieve 70% clean energy sources by 2030	Total KWh installed		
	Total projects completed		
GOAL: Resilience Stable energy costs Emergency backup	% change in energy costs		
	Emergency Action Plan in place and distributed to the community		
	# of volunteers engaged		
	# of low income households and renters participating in energy saving or generation programs		
GOAL: Local Economy Create jobs and keep money in local economy.	\$ invested into local economy or % of energy costs that departed the area		
	# students to start apprentice programs		
	# of jobs created		

Roles and Responsibilities

Definitions:

1. Accountable (A): Decision-maker
2. Responsible (R): Charged with implementing the decisions of the accountable party
3. Informed (I): Not part of the decision or implementation but needing to remain informed of progress
4. Not Involved (NI): Not part of the process

Topic	City	Team	Community	Other
Talent Energy Action Plan (Owner)	A	R	I	
Talent Energy Vision	A,R	R	I	
Policy Changes	A,R	I	I	
Funding Backing	A,R	I	I	

Topic	City	Team	Community	Other
Conservation Effort Execution	I	A,R	I	
Generation Effort Execution	A,R	R	I	
Communications Plan Execution	A,R	A,R	I	
Other...				

Project Scope (In and Out)

This Action Plan project addresses:

1. Energy efficiency and conservation programs and incentives for incorporated and unincorporated Talent
2. Phasing out energy (electricity) generated from burning fossil fuel and replacing it with energy produced from clean, renewable sources for incorporated and unincorporated Talent
3. Driving policy changes that facilitate energy conservation and generation in Talent
4. Ensuring that Talent resources stay in Talent
5. Improving Talent’s resilience to energy market and climate change
6. Monitoring progress, engaging and communicating with the Talent community
7. Procuring financial assistance and engaging low-income members of the Talent community

This Action Plan project does not address:

1. Water conservation
2. Food production/distribution
3. Transportation efficiencies
4. Reforestation
5. Phasing out the use of Natural Gas and Propane and its eventual replacement with electricity in the Greater Talent area. We recommend that this is incorporated into an update of the plan within the next two years.
6. Emergency Preparedness plans
7. Energy use and generation outside incorporated and unincorporated Talent

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Glossary of Commonly Used Terms

Adaptation: An adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustments in response to actual or expected climatic stimuli or their effects, which lessens harm or exploits beneficial opportunities. Various types of adaptation include anticipatory and reactive, private and public, and autonomous and planned.

Atmosphere: The gaseous envelope surrounding the Earth. The dry atmosphere consists almost entirely of nitrogen (78.1 percent volume mixing ratio) and oxygen (20.9 percent volume mixing ratio) together with a number of trace gases, such as argon (0.93 percent volume mixing ratio), helium, radiatively active greenhouse gases such as carbon dioxide (0.035 percent volume mixing ratio), and ozone.

Barrier: Any obstacle to reaching a potential that can be overcome by a policy, program, or measure.
Biofuel: A fuel produced from dry organic matter or from combustible oils produced by plants. Examples include alcohol from fermented sugar, black liquor from the paper manufacturing process, wood, and soybean oil.

Biomass: When referring to fuel, biomass is a plant-derived fuel from clean and untreated wood such as brush, stumps, lumber ends and trimmings, wood pallets, bark, wood chips or pellets, shavings, sawdust and slash, agricultural crops, biogas, or liquid biofuels, but excludes materials derived in whole or part from construction and demolition debris.

Bioswale: A vegetated depression that can temporarily store storm water, reduce flooding, cleaning water, and encourage infiltration.

Bus Rapid Transit (BRT): A system that emulates the efficiencies and operations of light-rail at a fraction of the costs. Attributes of a BRT system: Exclusive right of way—guarantees travel time, Signal priority—gives buses priority through intersections, Level boarding—makes boarding easier and quicker, Off-Board Fare Collection—negates fumbling with change and allows boarding at all doors, Less frequent stops—improves travel time, Improved stations—offers station amenities for passenger comfort, and Park & Ride connections – improves Vehicle Image Capacity (energy): The maximum power capability of a system.

Carbon dioxide (CO₂): The major heat-trapping gas whose atmospheric concentration is being increased by human activities. It also serves as the yardstick for all other greenhouse gases. The major source of CO₂ emissions is fuel combustion, but they also result from clearing forests and burning biomass. Atmospheric concentrations of CO₂ have been increasing at a rate of about 0.5 percent a year, and are now more than 30 percent above pre industrial levels.

Carbon neutral (also climate neutral): When greenhouse gas emissions are net zero. A building is carbon neutral when it doesn't generate more greenhouse gas emissions than it sequesters. This can also be accomplished by "offsetting" emissions with "carbon credits."

Carbon sequestration: The uptake and storage of carbon. Trees and other plants, for example, absorb CO₂, then release the oxygen while storing the carbon.

Carbon sinks: The processes or ecological systems that take in and store more carbon than they release. This process is called carbon sequestration. Forests and oceans are large carbon sinks.

Climate: The average state of the atmosphere including typical weather patterns for a particular region and time period (usually 30 years). Climate is the average, long term weather pattern for a particular region, while weather describes the short -term state of the atmosphere. Climate measures average precipitation, temperature, wind, and seasonal phenomena such as length of the growing season.

Climate change: A significant change from one climatic condition to another, often used in reference to climate changes caused by the increase in heat- trapping gases since the end of the 19th century.

Climate feedback: An interaction mechanism between processes in the climate system that happens when an initial process triggers changes in a second process that in turn influences the initial one. A positive feedback intensifies the original process, and a negative feedback reduces it.

Climate neutral: See carbon neutral.

Climate system: A complex system consisting of five major components: the atmosphere, the hydrosphere, the cryosphere, the land surface and the biosphere, and the interactions between them. The climate system evolves in time under the influence of its own internal dynamics and because of external forcings such as volcanic eruptions, solar variations, and human- induced forcings such as the changing composition of the atmosphere and land- use change.

Climate variability: Climate variability refers to changes in the average state and other aspects of the climate over space and time beyond that of individual weather events. Variability can be due to natural climate processes (internal variability), or natural or human -induced external changes (external variability). See also climate change.

Concentration: Amount of a chemical in a particular volume or weight of air, water, soil, or other medium. See also PPM (parts per million).

Cost- Effective: A criterion that specifies that a technology or measure delivers a good or service at equal or lower cost than current practice, or the least cost alternative for reaching a given target.

Community scale renewable energy: A renewable energy system, photovoltaic for example, installed at a large scale: for example, over the roof of a large commercial building. Often this will include multiple investors paying for a single, large installation that will benefit many homes or businesses.

District energy: In this system, steam, hot water or chilled water is produced in a central plant and distributed to multiple buildings in a defined area through underground pipes. These systems eliminate the need for heating or cooling equipment in each building, reducing upfront costs and saving energy. Also, district energy systems may offer more flexibility in the type of fuel used resulting in an easier transition from fossil fuel. An additional value of district systems is the distribution of expenses across all users for operations, maintenance and/or retrofitting, thereby reducing costs to customers. District

energy systems, especially those that use renewable fuel sources, can play an important role in reducing the carbon footprint of Talent's buildings.

Earth Advantage: A third party, green building certification program for new homes, multi-family buildings, and neighborhoods. Pilot programs are also available for remodels and small commercial projects. Key areas addressed include energy efficiency, indoor air quality, environmental responsibility, and resource efficiency. For more information: www.earthadvantage.com

Economic Output: The value of goods and services produced by a process or initiative.

Ecosystem: Any natural unit of living and non-living parts that interact to produce a stable system through cyclic exchange of materials.

Embodied energy: The total expenditure of energy involved in the creation of a product. This includes the energy to extract raw materials (lumber, iron, etc.), process, package, transport, install, and recycle or dispose of products.

Emissions: The release of a substance (usually a gas when referring to the subject of climate change) into the atmosphere.

Energy efficiency: Ratio of energy output of a conversion process or of a system to its energy input.

Energy intensity: Energy consumption per unit of output (e.g., food, materials, goods) or per measure of demand for services: (e.g., number of buildings, total floorspace, floorspace/-hours, number of employees).

Energy Performance Score: A home energy rating system similar to the miles per gallon (MPG) rating for the auto industry that enables homebuyers to directly compare energy consumption between homes while offering a natural market incentive to upgrade their homes as much as possible.

Energy Trust of Oregon (ETO): A nonprofit organization that helps certain utility customers in the Pacific Northwest improve their energy efficiency and tap renewable sources. ETO was set up to administer public purpose funds that are collected from customers for new cost-effective conservation, new market transformation, and the above-market costs of new renewable energy resources. For more information: <http://energytrust.org>

EPA: The United States Environmental Protection Agency.

Exposure: The nature and degree to which a system is exposed to significant climatic variations.

Fossil fuel: A general term for combustible geologic deposits of carbon in reduced (organic) form. Fossil fuels are of biological origin and include coal, oil, natural gas, oil shales and tar sands. A major concern is that they emit CO₂ when burned, significantly enhancing the greenhouse effect.

Generation: The process of making electricity. The term may also refer to energy supply.

Global warming: An average increase in the temperature of the Earth's atmosphere, which can contribute to changes in global climate patterns. Global warming can occur from a variety of causes, both natural and human induced. In common usage, "global warming" often refers to the warming that can occur as a result of increased emissions of greenhouse gases from human activities. See climate change, greenhouse effect.

Greenhouse effect: The thermal effect that results from heat -trapping gases allowing incoming solar radiation to pass through the Earth's atmosphere, but preventing most of the outgoing infrared radiation from the surface and lower atmosphere from escaping into outer space.

Greenhouse gas (GHG): Commonly abbreviated GHG, a term used for gases that trap heat in the atmosphere. The principal greenhouse gases that enter the atmosphere as a result of human activity are carbon dioxide, methane, and nitrous oxide. Others include, but are not limited to, water vapor, chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), ozone (O₃), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

IPCC: Intergovernmental Panel on Climate Change. Established in 1988, the IPCC assesses information in the scientific and technical literature related to all significant components of the issue of climate change. It draws on hundreds of the world's leading scientists to serve as authors, and thousands as reviewers. Key experts on climate change and the environmental, social and economic sciences from some 60 nations have helped the IPCC prepare periodic assessments of the scientific underpinnings of global climate change and its consequences. The IPCC is also looked to as the official advisory body to the world's governments on the state of the science of the climate change issue. **Implementation:** The realization of an idea, or execution of a plan, by groups or individuals, public or private.

Integrated design: a collaborative and holistic approach to building through which multiple disciplines and aspects of design—including architecture, lighting and electrical, HVAC, interior design, and landscape design—are considered together in the planning of a new structure or renovation to achieve a cost- effective, resource- efficient, and comfortable result. (Source: BetterBricks and the National Institute of Building Sciences)

Land use: Human- determined arrangements, activities, and inputs undertaken in a certain land type, the social and economic purposes for which land is managed (e.g., grazing, timber extraction, and conservation).

Land -use change: A change in the use or management of land by humans, which may lead to a change in land cover. Land cover and land- use change may have an impact on the albedo, evapotranspiration, sources, and sinks of greenhouse gases, or other properties of the climate system, and may thus have an impact on climate, locally or globally.

Lifecycle (of goods): The complete life (of goods)—the mining or extraction of raw materials, the manufacturing processes, transportation, packaging, retail, the use of goods, and finally their disposal.

LEED: Leadership in Energy and Environmental Design, a program of the United States Green Building Council and a commonly used green building standard.

Methane (CH₄): A hydrocarbon that is a heat-trapping gas carrying a global warming potential recently estimated at 24.5. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and oil, coal production and incomplete combustion of fossil fuels.

Metric ton (Mt): Common measurement for the quantity of greenhouse gas emissions. A metric ton is equal to 2205 lbs or 1.1 short tons.

Mitigation: An intervention to reduce the sources or enhance the sinks of greenhouse gases.

Natural gas: A fossil fuel that occurs as underground deposits of gases consisting of 50 to 90 percent methane (CH₄) and small amounts of heavier gaseous hydrocarbon compounds like propane (C₃H₈) and butane (C₄H₁₀).

Nitrous oxide (N₂O): A powerful greenhouse gas. Major sources include soil cultivation—especially from use of commercial and organic fertilizers—fossil fuel combustion in vehicles, nitric acid production and the combustion of biomass.

Occupant behavior: The behavior of building occupants such as residents and employees. Relevant occupant behaviors include how occupants operate thermostats, open and close windows, and use water and electricity.

ODOT: Oregon Department of Transportation.

Oregon DEQ: Oregon Department of Environmental Quality.

PPM: Parts per million.

Photovoltaic (PV): A solar power technology that converts sunlight into electricity.

Peak Oil: A term used to describe the transition from many decades in which the available supply of oil grew each year to a period in which the rate of oil production enters its terminal decline.

Point-source pollution: Pollution resulting from any confined, discrete source, such as a pipe, ditch, tunnel, well, container, concentrated animal-feeding operation, or floating craft. See also non-point-source pollution.

Product stewardship: Calls on those in the product life cycle—manufacturers, retailers, users, and disposers—to share responsibility for reducing the environmental impacts (definition from EPA website). Ideally, this would result in changes in design so that products create less waste, can be re-used or disassembled for easier recycling, or are otherwise redesigned.

Rain gardens: Stormwater management structures designed to slow runoff, clean water, and increase soil infiltration.

Radiation: Energy transfer in the form of electromagnetic waves or particles that release energy when absorbed by an object.

Renewable energy: Energy sources that are, within a short time frame relative to the Earth's natural cycles and sustainable. They include non carbon technologies such as solar energy, hydropower, and carbon- neutral technologies such as biomass.

Resilience: Amount of change a system can undergo without altering state.

Sink: A natural or artificial reservoir like soil, a forest, a landfill, a wood structure or other biomass -related product that stores carbon from the atmosphere.

Solar radiation: Radiation emitted by the sun.

Source (greenhouse gas): Any process or activity that releases into the atmosphere a greenhouse gas, an aerosol or a precursor to a greenhouse gas.

Stakeholder: A person or entity that would be affected by a particular action or policy.

Urban heat island: The increased temperatures experienced in urban areas due to dark -colored pavement, roofs, buildings, etc.

Vehicle- miles traveled (VMT): A measurement to determine the amount of automobile traffic—can also be used to calculate greenhouse gas emissions.

Vulnerability: The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate variability and extremes.

Weather: Atmospheric condition at any given time or place measured in terms of wind, temperature, humidity, atmospheric pressure, cloudiness, and precipitation. In most places, weather can change from hour to hour, day to day, and season to season. Climate is usually defined as the “average weather.”

Zero net energy: A net zero energy building annually produces as much energy through on-site renewable systems as it uses.

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Appendices

Appendix A: Rogue Valley Renewable Energy Assessment Executive Summary

Links and Resources

Rogue Valley Renewable Energy Assessment: Full Report

http://www.rvcog.org/cogboard/2011/Dec_14/RVCOG-REA_Final_Report-120811.pdf

Rogue Valley Renewable Energy Assessment: Solar

http://rvcog.org/REWG/Solar/March_15/Solar%20Electric%20REA%20Section_Final.pdf

Rogue Valley Renewable Energy Assessment: Biogas

http://rvcog.org/REWG/Biogas/Southern_Oregon_Biogas_Plant_Feasibility_Study-Summary.pdf

Southern Oregon Regional Greenhouse Gas Inventory

rvcog.org/cogboard/2011/Mar_23/Southern%20Oregon_Regional_GHG_Inventory_3.16.2011.pdf

Cleveland Climate Action Plan

http://www.sustainablecleveland.org/climate_action

Database of State Incentives for Renewables and Energy Efficiency

<http://www.dsireusa.org/>

ACCESS

<https://www.accesshelps.org/index.asp>

Energy Trust of Oregon

<https://energytrust.org/>

Oseia

<http://www.oseia.org/>

Department of Energy: Guide to Community Energy Strategic Planning

<http://energy.gov/eere/slsc/guide-community-energy-strategic-planning>

Energy Savers Tips on Saving Money and Energy at Home

http://energy.gov/sites/prod/files/2013/06/f2/energy_savers.pdf

energytrust.org/library/reports/021611_resourceassessment.pdf

Energy efficiency and conservation measure resource assessment for years 2010 – 2030